



South Korea's Current Status of FMS

THESIS

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THESIS

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Abstract

South Korea has been threatened by North Korea and surrounded by powerful countries since the Korean War in 1950~1953. One resource that maintains South Korea's security is the strong alliance with the U.S. The primary function of the alliance has been Foreign Military Sales (FMS). As the world circumstances change, South Korea may need more self-reliant defense power that can maintain its security with its own authority.

This thesis looks at where South Korea stands on FMS from the U.S, considering its economy, technology development, military expenditure, and dispute condition using Multiple Regression model. South Korea's current FMS trade amount is compared to the amount predicted by the regression model using data from 2001~2005. The result shows that South Korea imports weapon system through FMS from the U.S much more than is predicted multiple regression model. This means that South Korea is very dependent on the FMS for importing its weapon system.

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First, I owe a great deal of thanks to my nation South Korea and Army for sending me here and providing me with this wonderful master's program opportunity. I will use this knowledge for my nation.

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South Korea's Current Status of FMS

I. INTRODUCTION

A. GENERAL

Following its independence from Japanese colonization in 1945, South Korea was put under the U.S military government trusteeship for 3 years until its new government was set up on Aug 15, 1948 (Lee, 2001: 6). At this time, the U.S initiated free military assistance to South Korea. Having gained its independence, South Korea needed to build new defense power to protect itself from North Korea, which was supported by China and the Soviet Union (Chung, 2000: 4).

Since the Korean War (1950-1953), the United States and South Korea have maintained a strong alliance to protect democracy from communism. Because South Korea had no arms-producing capability until the early 1970's, the U.S supported free assistance to South Korea an average of \$250 million annually in the period following the Korean War from 1953 to 1973 (Shaw, 1984: 1-2). The U.S and South Korea set up the US-ROK Combined Forces Command (CFC) in Nov 17, 1978¹ to firm military relationship and have held U.S-South Korea Security Consultative Meeting (SCM) annually to solve and discuss the subjects of security and the military by the Secretary of Defenses of the two countries². This free assistance has changed gradually into Foreign Military Sales (FMS) since the 1973. South Korea's economy has grown stronger (Jang, 2004) and has begun to have its own capability for producing weapon systems with U.S financial and technical support (Shaw, 1984: 3). South Korea has expended a great amount for its weapon systems. Because of the strong alliance between the U.S and South Korea,

¹ . USFK Home page: www.usfk.mil/usfk/index.html/org/cfc.html

² . World Wide Web source: <http://terms.naver.com/item.php?dlid=7&docid=8481>

and the special defense system of the U.S, South Korea's major military deals and trades have primarily been with the U.S. However, the military and political dynamics of Northeast Asia are changing and South Korea has started to give serious consideration to diversifying its buyer countries. Considering the relationship with China and Japan for the unity of Korea in the future, South Korea needs its own strong defense technology and industries in order to keep the unity (Chung, 2000). China and Japan invaded Korea many times historically and have disputed the exclusive economic zone (EEZ) up to now³.

B. PURPOSE OF THE STUDY

South Korea has imported weapon systems through FMS for a long time and FMS has been the foundation of the alliance between the U.S and South Korea. However, as South Korea continues to grow its economy and technology and changing security environment in the world, there are suggestions that South Korea needs self-defense military power to cope with new threats in the future. Therefore, it is necessary to understand where South Korea stands on the weapon system trade with the U.S. The purpose of this study is to investigate how much South Korea should invest in the importation of weapon systems through FMS, as predicted by its Technology level development, increasing Military Expenditure, and dispute environment as its economy grow stronger and as compared to estimating that amount using a regression model. This study will also examine the relationships between the amounts of FMS and each condition; Economy, Technology, and Military Expenditure.

C. BACKGROUND

3. Chosun newspaper, *Dokdo-Endless dispute*, Aug 21, 2006.

1. Historical and geographical situation of South Korea

Through history, Korea has experienced invasions from powerful countries. Korea, both South and North, was under the colonization of Japan for 36 years (1910-1945). It has also been invaded by China, Mongolia, and numerous times by Japan. This long history of invasions has caused South Korea to develop its own power in order to protect itself. This defense system desired by South Korea is not simply for an immediate need, but also an inevitable necessity (Kim, 2001).

Geographically, Korea is surrounded by the most powerful countries in the world, such as Japan, Russia, and China. The U.S., the most powerful military country in the world, has also stationed its strong troops at South Korea and Japan. In response to North Korea's constant threat and confrontation, South Korea should construct strong military power in order to prevent future national security problems. From the recent dispute with Japan for the *Dokdo*⁴, South Korea realized again that it will not be able to live without self-defense power in the future (Bak, 2005).

2. Military buildup on Northeast Asia

The military buildup of countries surrounding the Korean peninsula is definitely one main factor to consider. Table 1 shows the expenditure these countries have spent for their national defense. And as we can see, 4 of the top 10 countries on this list engage in military actions near the Korean Peninsulas (Russia has not published its expenditures). This situation in the peninsula is a concern for South Korea.

⁴ . Name of small island placed between South Korea and Japan.

Table 1. Military Expenditures rank orders

| Rank | Country | Military expenditures (Billion dollars) | Date of Information |
|------|----------------|---|---------------------|
| 1 | United States | 518.100 | 2005 est. |
| 2 | China | 81.470 | 2005 est. |
| 3 | France | 45.000 | 2005 |
| 4 | Japan | 44.310 | 2005 est. |
| 5 | United Kingdom | 42.836 | 2005 est. |
| 6 | Germany | 35.063 | 2003 |
| 7 | Italy | 28.182 | 2003 |
| 8 | Korea, South | 21.050 | 2005 est. |
| 9 | India | 19.040 | 2005 est. |
| 10 | Saudi Arabia | 18.000 | 2005 est. |
| : | : | : | : |
| 22 | Korea, North | 5.000 | FY02 |

Source: Central Intelligence Agency(CIA), The World Factbook, 2005.
(www.cia.gov/cia/publications/factbook/rankorder)

Moreover, China and Japan, which have had historical troubles for a long time with Korea, have increased military expenditure continually as shown in Figure 1. Although they already have strong military power present, they have tried to develop their power constantly.

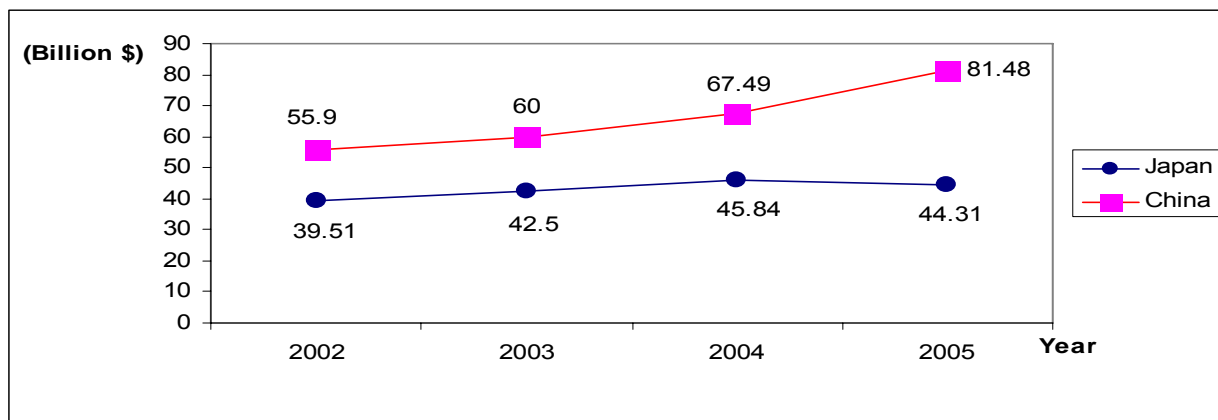


Figure 1. Increasing of Military expenditures – Japan, China

Source: Central Intelligence Agency (CIA), Ibid.

In particular, South Korea is under continuous threat from North Korea, which claims to have increased its military power in recent years despite its poor economy (Lee, 2001). North Korea

has also threatened South Korea and alliances with nuclear bomb experiments.

3. Limitation of reliance on the U.S

South Korea has been very dependent on the U.S for its military and defense, and the U.S stationed 36,000 armed forces in South Korea (Lee, 2005). However, this has been changed in the recent years because the U.S. has considered replacement of its armed forces stationed on foreign countries (GPR: Global force Posture Review)⁵. After the World War II, the U.S. stationed its troops at Western Europe and North East Asia to cope with threat of communism. However, as the world security environment has changed after the Cold-War, the U.S needs to modify its strategy for managing troops stationed in allied countries. This is to cope with new threats such as terrorism or Weapons of Mass Destruction (WMD). As a part of this plan, the U.S. already transferred the 3,600 armed forces of U.S. army 2nd Division stationed in South Korea to Iraq in August 2004 since the aggravation in Iraq war. Another 9,000 troops will be withdrawn from South Korea to the U.S by 2008 (Lee, 2005).

In addition to this, the negotiation about handing over the wartime operational control (OPCON) by 2009 through 2012 has already started between the U.S. and South Korea (Bush, 2006). Up to now, the U.S. has had the strategy in which it executes the war while controlling South Korea's forces in the Korean Peninsula. However, South Korea should carry out the war with supporting from the U.S. after withdrawing the authority of operational control.

4. Endeavor of military buildup for self-defense

1) Present government's direction for military buildup

⁵. U.S Department of State, *Foreign Press Center Briefing*, Washington DC, Aug 16, 2004.
(<http://fpc.state.gov/fpc/35246.htm>)

The South Korean President currently in office has advocated reform policies of military defense from the inauguration (Lawless, 2006). Traditionally, self-reliant defense had been desired to enable a nation to protect itself by one's own power alone. However nowadays, it is impossible to protect a nation by oneself and cooperation with friendly nations is needed (Lee, 2005).

To secure peace of the Korean peninsula, the present government of South Korea established strong self-reliant defense power as well as sustaining alliance with the U.S firmly as the goal. That is to say, the national security points of *cooperative-self reliant defense* are management of alliance and strengthen nation's defense. In particular from the view of self-reliant defense, it is crucial that South Korea develop the necessary war potential to control North Korea's military power (Lee, 2005).

2) Opening new agency for acquisition⁶: DAPA

In Jan 2006, the South Korea government established a new agency called the Defense Acquisition Program Administration (DAPA), which will charge provision military supplies and acquire weapon system from foreign countries. This project originated in 2003 as part of military reform because South Korea realized that efficient weapon system acquisition is the foundation for making strong military power. DAPA was set up to integrate several departments dispersed at Ministry of National Defense, army, air force, and navy.

There were reasons that South Korea established DAPA. Among them, shrinking of R&D because of importing weapon system is the prime point. The increasing number of weapon systems imported from foreign countries results in a weakened South Korea's R&D and military industry.

⁶ .DEFENSE&TECHNOLOGY, KOREA, Vol .323, Jan. 2006.

For overcoming these problems, DAPA established two objectives⁷. The first objective is to increase R&D instead of purchasing from foreign countries if circumstances allow. To do this, DAPA will combine academy with industry to develop core technology. And the second objective is to promote transparent procedures and efficiency. DAPA will pursue getting technology more with offset to improve its technology if it buys the weapon systems from foreign countries. From these fundamental concepts, South Korea will increase R&D as well as strive for growing domestic military industries.

3) Defense reform 2020⁸

South Korea government setup the plan reforming defense structure for preparation *cooperative self reliant defense* by 2020 including project about possessing new and core technology weapon system for showing real strong self-reliant defense. The points are that secure information collecting ability for free from depending on the U.S information system and have operational power executing war by one's own ability.

This implies that South Korea will need so much new technology and weapon system in the future. These new weapon systems will be equipped both by R&D domestic and by purchasing from foreign developed countries include FMS.

4) Need for independence of South Korea military

No country is able to defend itself without any support and alliance from other countries. This is also true in the case of South Korea. There are always some mutual benefits and interests behind any alliance and military ties. But no alliance is strong and long-lasting (Seo, 1997). For example, we saw how Vietnam collapsed under the communist regime in the 1970's. Vietnam was very dependent on the U.S but after the withdrawal of the U.S troops, it subsided eventually

⁷ .Defense Acquisition Program Administration (DAPA). *Introduce DAPA for active duty officers*, South Korea, Apr, 2006.

⁸ . Dong-A Newspaper, South Korea, July 11, 2006.

because they did not have any military buildup of their own. South Korea might follow the same path if it does not start developing its own independent military power, because it can no longer exclusively rely on the alliance with the U.S in the future (Ro, 1975).

Moreover, it is the time to look again at our military strategies and policies because of the recent changes both in the world and region. South Korea's priorities in military and politics have changed drastically in general. It does not need now the simple weapon system that was provided by the U.S. in the early 1960s. Rather, South Korea needs to have high technology weapon systems from the U.S. in order to keep the alliance strong and cope with future circumstances (Seo, 1997).

It also had to do a lot with North Korea, the main enemy for South Korea still today. However, there might come the time soon in near future when the two Koreas would unite. If so, what countries would be the main enemies for Korea in the future? As stated above, China and Japan could build an alliance and change the whole dynamic not only in the whole Northeast Asian region, but also in the world. (Kwun, 1999).

To avoid these inevitable future problems mentioned above, South Korea definitely needs to have its own military buildup and power soon.

D. HYPOTHESIS

The main issue in this study will be South Korea's FMS trade. In order to investigate FMS, the relationship between FMS and Economy, Technology, Military Expenditure will also need to be investigated. To set hypothesis for verifying, I consider the cases about developing countries such as China, India, and South Korea. China is the fastest growing economy in the world, with

what may be the fastest growing military budget (Kristof, 1993). Actually, China has increased its military budget, and bought many weapon systems from Russia as growing economy. India is the same case. As growing India economy, it increased its military budget and importing weapon system (Kelly, 2000). As economy has been increased, technology levels raise also as we can see amazing growth of Technology in India as growing economy (Stahl, 2006). In case of South Korea, it has invested on the R&D and increase military budget as its economy grows (Jung, 2002).

From this previous research, we can know that a nation's Technology and Military Expenditure tend to increase as a nation's economy becomes stronger and can be considered to be related to Economy, Technology, and Military Expenditure. So, I set the following hypotheses.

1. The relationship between Economic development and the amount FMS is positive
2. The relationship between Technology development and the amount FMS is positive
3. The relationship between Military Expenditures and the amount FMS is positive
4. The amount of FMS of South Korea is beyond the level of its economic development, technology development, Military Expenditure level, and dispute probability.

II. LITERATURE REVIEW

A. INTRODUCTION

The South Korea Airforce is a big recipient of FMS. It acquires many weapon systems from foreign country, and the FMS program makes up 72% of all foreign imports (Lee, 2001: 4). Therefore, much research has been done on FMS extensively in South Korea as well as in the U.S.

In this research, I will study the amount FMS and Economy, Technology, Military expenditures and dispute condition. To do this, I will investigate FMS policy, process, and its overall effect on South Korea. In this chapter, I will review previous studies and research to explain FMS definition, development history, especially the U.S. Security Assistance Program, and internal/external problems. Next, I will look briefly at the history of military transfer development between the U.S and South Korea. Finally, I will check the validity using GDP and Patents as factors for a regression model.

B. UNITED STATES FOREIGN MILITARY SALES PROGRAM OVERVIEW

1. What is Foreign Military Sales (FMS)

Foreign Military Sales (FMS) is defined as a process through which eligible foreign governments and international organizations may purchase defense articles and services from the United States Government⁹. It is the largest program of the overall U.S security assistance program¹⁰. In regard to FMS, the FMS customer country is the buyer and the U.S government is

⁹. FMS Customer Financial Management Handbook, 1981.

the seller. The U.S government provides the articles or services from stock, but often will issue a contract with industry to acquire the items or services for subsequent delivery to the FMS customer. In this case, the U.S government is acting on the FMS customer's behalf (DISAM, 2003: 234).

Then why does the U.S. government have a FMS program? There are many reasons. Since World War II, the United States has provided various forms of security assistance to other nations in furtherance of the principle of collective security. In furtherance of this principle, section 1 of the Arms Export Control Act (AECA) establishes the rationale for FMS:

The Congress recognizes...that the United States and other free and independent countries continue to have valid requirements for effective and mutually growing cost and complexity of defense equipment, it is increasingly difficult and uneconomic for any country, particularly a developing country, to fill all of its legitimate defense requirements from its own design and production base(DISAM, 2003: 53).

The FMS program was legislated by the Foreign Assistance Act (FAA) of 1961 and the Arms Export Control Act (AECA) of 1976 (Najmuddin, 2004). We can see that the reasons for executing and developing FMS are three viewpoints. First, to secure the democratic nations' peace and security confronting with the communism. Next, to get economic benefit from developing military industrial base and exporting weapon system to the alliances. And finally, to maintain military industrial base which will be able to supply large amount of weapon systems to secure the U.S security in the future (Jacob, 2001).

To understand the role of FMS today, I should first look at the origins of arms sales during

¹⁰. Other program elements include : The military Assistance Program(MAP); The international Military Education and Training Program(IMETP); the Economic Support Fund(ESF); and Peacekeeping Operations(PKO).

parts of the 20th Century.

2. FMS historical perspectives

The military support to the foreign alliances by the U.S. began on World War II. The United States has always maintained non-entanglement and non-commitment policies from outer war¹¹. However, in 1939 Congress revised the “Neutrality Act,” thereby permitting the sale of arms during peacetime to the British on a cash-and –carry basis. The next major U.S. decision to the British was the “Lend-Lease” program initiated by an Act of Congress on March 11, 1941. Lend-Lease eventually supplied about \$50 billion of arms, food, and other aids to Allies, including, as they became engaged in the war, the Russians and the Chinese (DISAM, 2003: 17-20).

Table 2. Change policy for weapon sales

| Periods | President | Situation / Basic Policy | Practice |
|---------------|----------------------------|--|---|
| 1945's~1950's | •Truman •Eisenhower | •Check from threat of Communism •Protect Alliances | • The methods for protecting from Soviet. • Stockpiles of surplus : free of charge |
| 1960's | •Kennedy •Johnson | •The policy of “massive retaliation” against Soviet • Improve revenue •Reduce stockpile post war | • Change free→pay • Sales promotion actively to the according to the country's ability |
| 1970's | •Nixon •Ford •Carter | • Control the sales weapon | • Negative perspective for weapon sale • Make regulations Congress permission •Continue sale to sustain check for communism and relationship with alliances |
| 1980's | •Reagan | •Arms transfer as an essential element global defense policy •Improve the U.S economy by stable defense production base | • Increase sales weapon •Reinforce military capabilities to assist in the deterrence of aggression from the USSR |
| 1990's | •Bush •Clinton | •Collapse Iron Curtain •Serious domestic economic problem •mutual burden | •New arms transfer policy include the promotion of control and transparency • The excess sales weapon is negative for U.S security |

Source: DISAM, Ibid, pp.20~38.

¹¹ . DISAM, Ibid, p.1.

After this, the U.S. changed the FMS policy coincidence with changing the world environment situation. And, there always has been a big premise. That is, the U.S' security (Hebert, 1998). We can see the change of weapon sales by period in Table 2.

This FMS program is based on the U.S. Security Assistance Program which includes general defense services. It is necessary that we should know the change of the Security Assistance Program, given in Figure 2, to understand FMS program more.

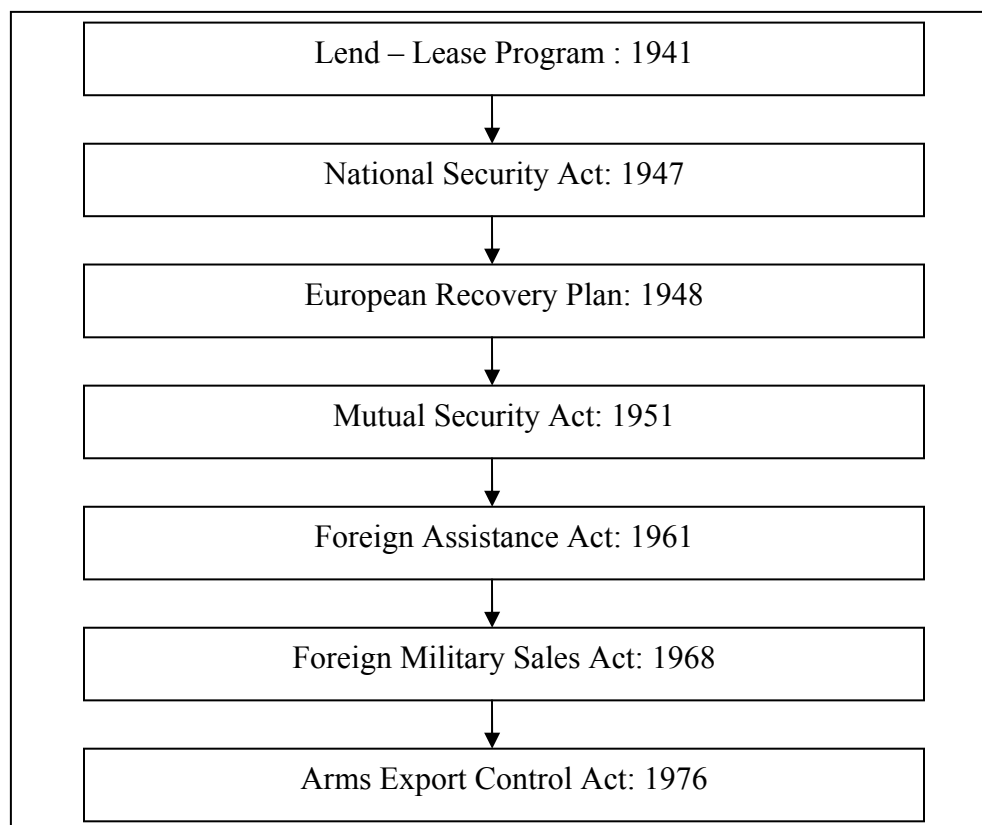


Figure 2. U.S. Security Assistance Program change

Source: Lee, Seung chun, Research for FMS forward plan, 2001, p.7.

The U.S. Security Assistance program was started by “Lend-Lease program” in 1941. It was amended to Mutual Security Act in 1951, Foreign Military Sales Act in 1968, and reformed as Arms Export Control Act in 1976.

1) Foreign Assistance Act (1961)¹²: FAA

The Foreign Assistance Act was made by amending the previous Act which assisted the military and economic programs. Foreign Assistance Act stated clearly that the U.S. security might be strengthened more by ensuring the alliances' security. By this Act, the U.S. could provide all the assistances such like lease, exchange, free charge military aids, loan, and sale without limitation if needed

2) Foreign Military Sales Act (1968)¹³: FMSA

The Foreign Military Sales Act was made by separating Military sales from the Foreign Assistance Act. Before 1968, the basis authority for foreign military sales was the FAA. This Act enabled the U.S. legalized unit law for defense material sale including co-production to the alliances and the international organization.

3) Arms Export Control Act (1976)¹⁴: AECA

The Arms Export Control Act of 1976 changed the title of the FMSA to the AECA. This 1976 Act also repealed the Mutual Security Act of 1954 (which provided authority for commercial licensing through the International Traffic in Arms Regulation); this authority was placed in a new Control of Arms Exports and Imports of the AECA which governs the licensing and sale of items through direct commercial channels. The AECA is the statutory basis for the conduct of foreign military sales and the control of commercial sales of defense articles and services. And Arms Export Control Act of 1976 changed the title of the FMSA to the AECA. This Act makes clear that the U.S. can exercise initiative for reducing trade weapon system between countries in

¹² . DISAM, Ibid, p.55.

¹³ . Lee, Ibid, p.7-8.

¹⁴ . DISAM, Ibid, p.55.

the World and present FMS policy comply with this Act.

3. The FMS Organizations and process

1) U.S government organizations for FMS¹⁵

An awareness of the U.S government organizations involved in FMS is crucial to understanding FMS because it is a large, complex program which cuts across several U.S government organizational lines.

(1) Department of State

In accordance with section 2 of the AECA (Arms Export Control Act), the Secretary of State is responsible for:

- The continuous supervision and general direction of sales (FMS) and commercial exports licensed under the AECA
- Determining whether there shall be a sale to a country and the amount

And the under Secretary of State for Security Assistance, Science, and Technology is the principal advisor and focal point for security assistance(including FMS) matters within the Department of State.

(2) Department of Defense

The overall security assistance program is under the supervision and general direction of the U.S. Secretary of State. However, the Secretary of Defense is responsible for administering certain security assistance program elements, one of which is FMS. In accordance with the AECA, the Secretary of Defense has primary responsibility for:

- The determination of military end-item requirements

¹⁵ . DISAM, Ibid, pp. 85~104.

- The procurement of military equipment in a manner which permits its integration with service programs
- The supervision of the training of foreign military personnel
- The movement and delivery of military end items
- Within the Department of Defense, the performance of any other functions with respect to sales and guarantees

(3) Department of Treasury

The Department of Treasury is involved in FMS in the following ways:

- Receiving and reviewing periodic reports of accountability from the Security Assistance Accounting Center (SAAC)
- Overseeing the functions of the Federal Financing Bank (FFB) which provides guaranteed loans to finance FMS and commercial export sales
- Setting the rate of interest in the event of FMS payment arrearages on the part of the foreign government

(4) Congress¹⁶

The Congress of the U.S. is vested with all legislative powers. With regard to conventional arms transfers/sales, which constitute a major dimension of the U.S security framework, the Constitution assigns Congress the power to regulate commerce with foreign nations. In terms of FMS, Congress has the authority for approving sales of MDE¹⁷ (Major Defense Equipment).

¹⁶ . Lee, 2001, Ibid.

¹⁷ . MDE(Major Defense Equipment) : total over 50million dollars / per unit, over 200million dollars construction

(5) Defense Security Cooperation Agency (DSCA)¹⁸

DSCA is the main agency for managing FMS. It is established as a separate agency of the DoD under the direction, authority, and control of the Under Secretary of Defense for Policy and receives policy direction and staff supervision.

The principal functions of DSCA include:

- Making determinations with respect to the allocation of FMS administrative funds
- Conducting international logistics and sales negotiations with foreign countries
- Serving as the DoD focal point for liaison with U.S. industry

In addition to above, there are many separate agencies which connect with FMS. And these organizations play a crucial role for granting and managing FMS. These organizations and processes are operated in the system of Security Assistance. The summary of government organizations for Security Assistance is shown in Figure 3.

2) FMS Process¹⁹

Many of the literature discussed above in various phases. However, the author will mention the core briefly and show by figure in this study. The FMS process is divided into three supporting processes like below.

(1) Letter of Request (LOR) / Offer (LOO) process

LOR is a formal diplomatic letter requesting articles, military construction, or other services submitted by an eligible foreign country. LOR must be reviewed and validated by the military department, Defense Security Cooperative Agency (DSCA), and the Department of State, to

¹⁸ . DISAM, The Management of Security Assistance, 23th edition, 2003, p.95.

¹⁹ . DISAM, Ibid, p.151~175.

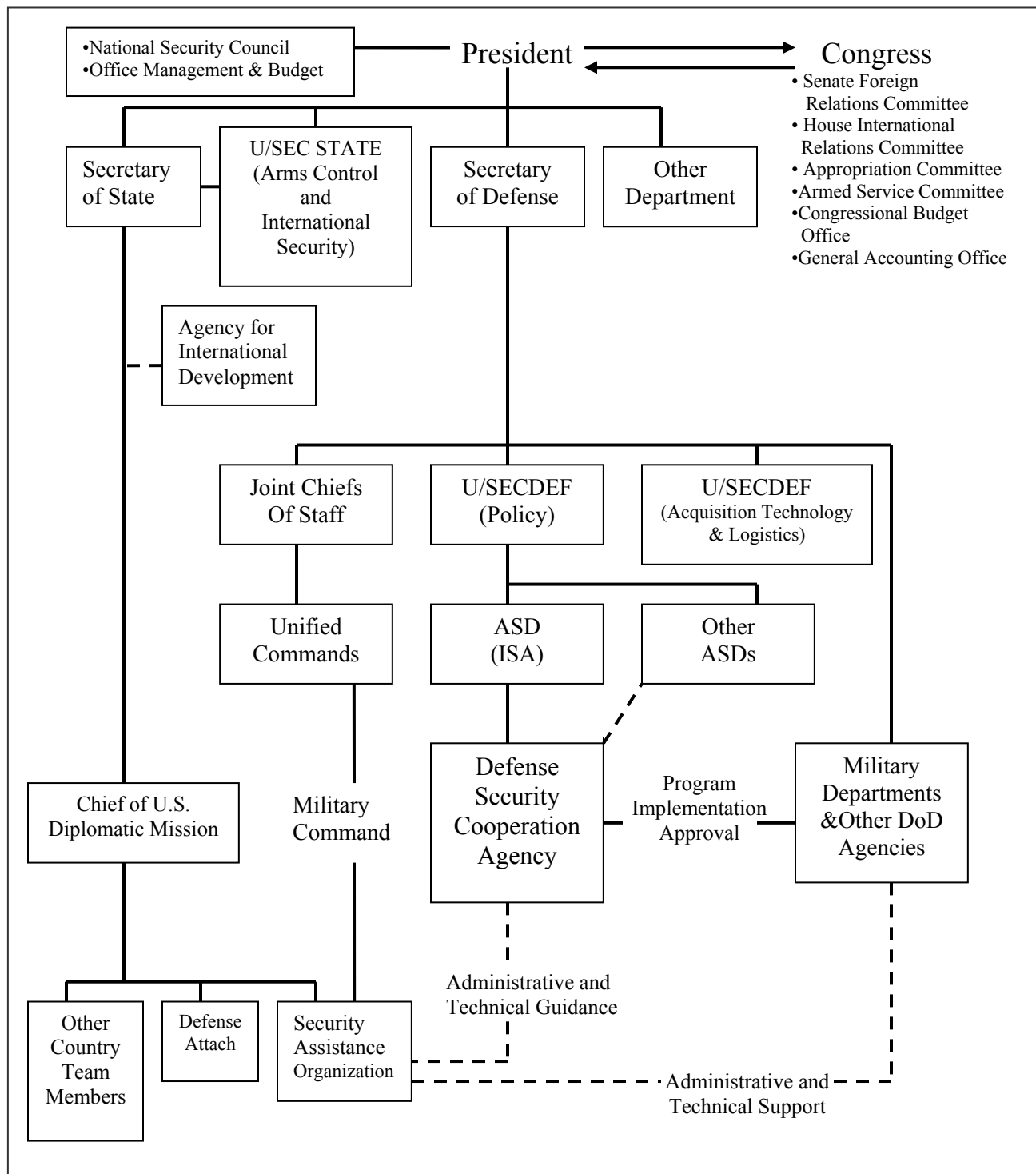


Figure 3. United State Government Organization for Security Assistance

Source: DISAM, Ibid, p.86.

ensure that the prospective FMS purchaser is eligible, that the articles/services may be sold, and that the request went through proper channels.

After LOR is approved, the IA (Implementing Agency, e.g., U.S Army, AF, Navy, etc.) definitizes the Purchaser's requirements in the form of a Price and Availability (P&A) data worksheet and develops a Letter of Offer (LOO). The price is developed in accordance with current pricing practice and is based upon the IA's understanding of the customer's requirements.

The Purchaser, in accordance with the stated terms and conditions on the LOO, agrees to pay all costs once determined.

(2) Letter of Acceptance (LOA) / Implementation process

Once the FMS Purchaser accepts/signs the LOO, it becomes a Letter of Acceptance (LOA). Upon receipt of the signed LOA and, if required, an initial deposit, SAAC (Security Assistance Accounting Center) is in position to issue Obligational Authority (OA) to the IA. OA enables the IA to prepare requisitions that will result in Material Release Orders (MROs). Most FMS cases are implemented by means of an IA implementing directive.

(3) Execution/Performance Reporting process

Performance on a FMS case is demonstrated to the FMS purchaser through receipt of status cards or the quarterly requisition report from the IA, or the reporting of the performance/delivery in the Delivery Listing accompanying each quarterly FMS Billing Statement.

The FMS process and periods are described like in Figure 4.

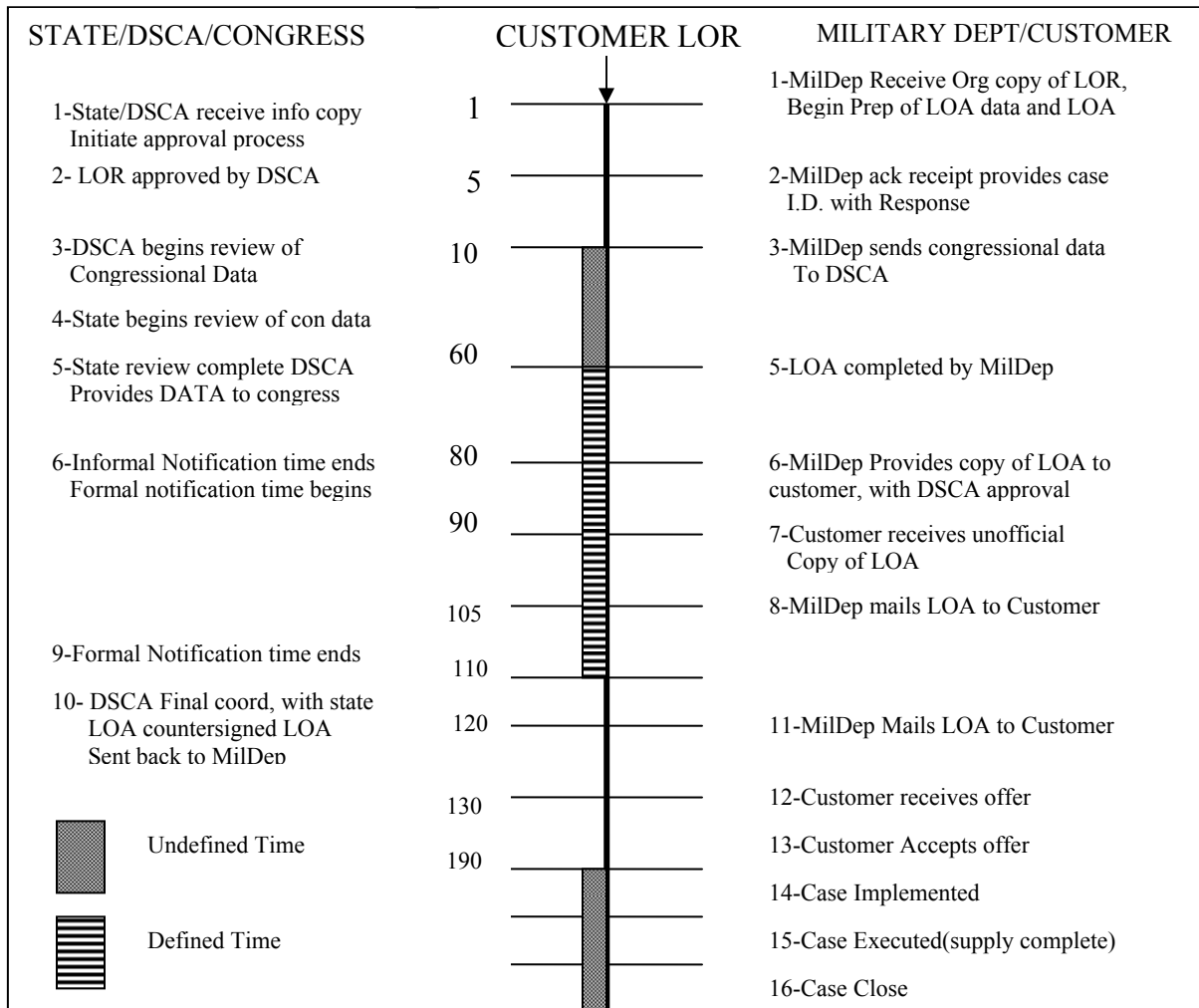


Figure 4. FMS Process (Days)

Source: Gultekin, Foreign Military Sales versus Direct Commercial sales, 1998, p.35.

4. Reform of FMS²⁰

As the Cold War era ended, there were big changes in the cognition of FMS because together with varying international weapon system market, each country experienced domestic problems. The purchasers expressed their dissatisfaction including lack of distrust at the FMS policy (Beauchamp, 2001). This dissatisfaction resulted in the decrease of purchasing amounts. The trend of FMS purchase is given in figure 5.

²⁰ .Beauchamp, Transforming FMS for The 21st Century, The DISAM Journal, winter 2001-2002.

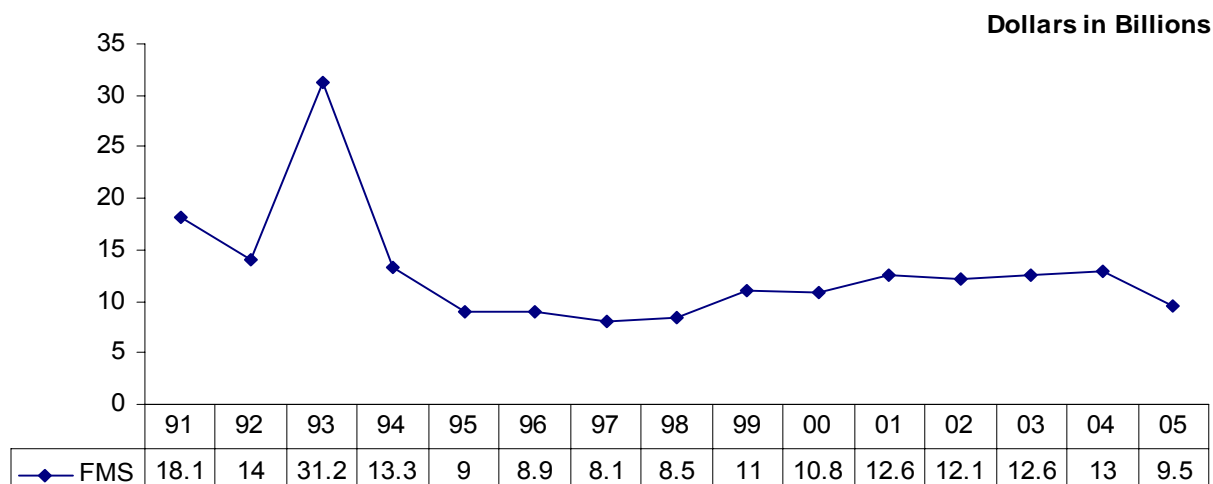


Figure 5. Trend of FMS by Years

Source : DSCA(Defense Security Cooperation Agency) Factbook, 2005, p.6.

As we can see from the figure above, after the Cold War in 1990, the FMS sales decreased to 1998 constantly except FY1993²¹ before U.S government began the FMS reform. To meet these world defense trade environment, DSCA (Defense Security Cooperation Agency) has devoted all its strength to FMS policy revolution.

FMS reform was initiated with organizing DPACT (Defense Policy Advisory Committee on Trade) and IPT (Integrated Process Team) in May 1998, by former Under Secretary of Defense Dr.John Hamre. Thereafter U.S government began full-scale reform in April 1999, and emphasis on the importance of FMS reform constantly.

The main goals of the FMS reform are to shorten operating cycle and most suitable of all the relevant agencies, improve service quality to the purchase countries, make flexible business process environment, increasing purchases' voice in the process, and improve U.S. government'

²¹ .Bill Clinton assumed the Presidency in 1993. The Clinton government was encouraging U.S embassies to actively assist U.S.marketing efforts overseas to boost the U.S. economy. This was interpreted to include aiding U.S .civilian defense contractors in the pursuit of direct commercial sales and foreign military sales of defense articles, services, and training overseas. FY1993 FMS sales topped \$31billion. Those sales kept U.S. production lines open and defense industry employment up.
DISAM.Ibid, p.30.

competitiveness and status.

B. FMS AND SOUTH KOREA

1. FMS between the U.S and South Korea

The South Korea military used Japanese war trophies and stockpiles of U.S. after World War II in 1946~1950, then it was dependent on aids from alliances during the Korea War in 1950~1953. From 1954, it received free charge military support from the U.S. on the U.S.-R.O.K. Mutual Defense Treaty²² to 1960. However, this free charge military support changed into payment support in the beginning of 1961, then changed into the FMS again in 1973 (Lee, 2001).

The trend of weapon system transfer between the U.S. and South Korea is given in Table 3.

Table 3. Defense material procure and U.S. Security Assistance change

| Periods | Defense material procure from U.S | U.S. Security Assistance |
|--------------|--|--|
| 1946~1950 | Stockpiles of U.S. after World War II | |
| 1950~1953 | Aid from the U.S. and Alliances | Mutual Security Act, 1951 |
| 1954~1960 | MAP (Military Assistance Program) and Loan | |
| 1961~1972 | MAP and FMS | Foreign Assistance Act, 1961 Foreign Military Sales Act, 1968 |
| 1973~Present | FMS | Arms Export Control Act, 1976 |

Source: DISAM, Ibid, p.55.

Kim, seayoun, A study on the Improvement plan of the FMS system, 2001, p.9.

²² . Since the end of the Korean War, the United States has committed itself to the security of South Korea. In the 1954 U.S.-R.O.K. Mutual Defense Treaty, the United States committed to help the Republic of Korea defend itself from external aggression. In support of this commitment, the United States currently maintains about 36,000 service personnel in Korea, including the Army's Second Infantry Division and several Air Force tactical squadrons.

Source : Federation of American Scientists

(http://fas.org/asmp/profiles/south_korea.htm#Arms%20Sales%20Tables)

2. Problems of FMS

South Korea has bought the weapon system from the U.S in two ways; Foreign Military Sales (FMS) and Direct Commercial Sales (DCS²³). Of these two, FMS account for about 85.4% of all the importing weapon system until now (Jung, 2001: 12). That is to say, South Korea imports most of weapon system through FMS.

However, there has been a little change on the acquisition way different with past because South Korea feels that there are some difficulties negotiating with the U.S. in the current FMS policy. Therefore, there have been many studies indicating the FMS program problems from the view of South Korea. Lee (2001) indicates that there is big cognition gap between the two countries. The point is that, the U.S. Government considers the FMS just as a means to security assistance. So, if the South Korea chooses the FMS between the FMS and DCS, the U.S. Government believes South Korea ought to follow the FMS policy and procedures. On the other side, South Korea considers the FMS as means to acquire weapon system like DCS. Therefore, South Korea wants to exercise its privilege as a buyer's standpoint while negotiating on the price of weapon system and offset. However, because the FMS is lacking in flexibilities, South Korea seeks for other means in which South Korea can negotiate more easily like DCS or other countries suggesting better favorable terms²⁴.

Kim (2001) and Jung (2003) said that this kind of problem is based on the FMS policy itself. The buyer countries including South Korea indicate the inequity in the LOA Standard Terms and

²³ . DISAM, Ibid, p.49.

Direct Commercial Sales (DCS) licensed under the AECA of 1976 is a sale made by U.S. industry directly to a foreign buyer. Unlike the procedures employed for FMS, DCS transactions are not administered by DoD and do not involve a government-to-government agreement. Rather, the U.S. Governmental 'control' procedure is accomplished through by the Office of Defense Trade Controls in the Department of State.

²⁴ . Maj Ji Man Roh, ROK Air Force,(Interview, Nov 6, 2006).

He graduated ROK Airforce Academy in 1990 and had worked at South Korea acquisition agency as FMS Officer to 2006. And he has served as a liaison officer between the ROK military attached to an embassy and USAFSAC(U.S. Airforce Security Assistance Command) since Aug ,2006.

Conditions. This policy contains several sections being disadvantageous to the purchasers. The U.S. Government prescribes its principle role as the U.S. Government will use its best efforts to provide the items. But it also sets down that the U.S. Government reserves the right to cancel or suspend all or part of contract when the national interest of the U.S. requires although it shall be responsible for termination cost. This means that the U.S. can revise the contract one-sidedly without purchaser's opinion²⁵. In addition, the purchaser should undertake to indemnify for all the risks and losses during process on the procurement²⁶ and charge the total cost to the U.S. Government of the items even if costs exceed the amounts estimated in original LOA.²⁷

Park (2001) studies the inequality in the treatment as FMS big buyer. As we can see Table 4, South Korea is the fifth of all the FMS purchase countries. However, South Korea does not think that it is treated as big buyer comparing to North Atlantic Treaty Organization (NATO) members, Australia, Japan, and New Zealand which even do not rank in top 10. These countries have received

Table 4. The main FMS buyer records (Agreement)

| Rank | Country | Amount (Dollars In Millions) |
|-------------|----------------|--------------------------------------|
| 1 | Saudi Arabia | 68,125 |
| 2 | Egypt | 28,363 |
| 3 | Taiwan | 27,985 |
| 4 | Israel | 27,014 |
| 5 | South Korea | 15,633 |
| 6 | United Kingdom | 15,277 |
| 7 | Japan | 14,876 |
| 8 | Turkey | 14,670 |

Source: DSCA Factbook, Ibid, p.2~10.

²⁵ . Letter of Offer and Acceptance(LOA) Standard Terms and Conditions, [Section 1]: United states Government Obligation

²⁶ . Letter of Offer and Acceptance(LOA) Standard Terms and Conditions, [Section 3]: Indemnification and Assumption of Risks.

²⁷ . Letter of Offer and Acceptance(LOA) Standard Terms and Conditions, [Section 4]: Financial Terms and Conditions.

several favors from U.S. Government. For example, the period of Advance Congress Review²⁸ for these countries is just 15 days. But the other hand, other countries including South Korea it takes 50 days²⁹. This period may affect the maintenance of war potential. And FMS Administrative Surcharge³⁰ which is imposed to the purchaser countries for executing FMS procedure is 3.8%³¹ of the case, but NATO members are exempted from this charge³². Among the NATO members, there is no country that purchases weapon system through FMS than South Korea as we can see from Table 4. The principal countries buying weapon system through FMS are in the Middle East Asia and Northeast Asia include of South Korea.

C. MILITARY OFFSET AND TECHNOLOGY TRANSFER

1. What is offset in FMS program

The term offset is defined like this,

A myriad of compensation practices required by a foreign purchasing government as a condition attached to the sale of defense articles or services (Herbert, 1998)

The intent of these arrangements is to decrease the impact of expensive weapon systems on the buyer's balance of payments and to provide the buyer with other advantages. The meaning of the term offset encompasses the entire range of industrial and commercial benefits provided to

²⁸ . The President shall submit a numbered certification to the Congress before issuing LOA to sell defense articles or services for \$50 million or more, or any design and construction services for \$200 million or more, or major defense equipment for \$14 million or more.

²⁹ . DISAM, Ibid, p.69.

³⁰ . The Arms Export Control Act(AECA) requires the U.S.Government to recover the full estimated cost of administration of FMS. The AECA mandates collection of a percentage-based Administrative Surcharge on FMS cases to recover all applicable U.S. costs to execute, manage, and oversee the FMS program. (Keith B.Webster, *Security Assistance Charge Roll-out Briefing*-Public release, Security Cooperation Agency, Mar 15, 2006,p.1.)

³¹ . Webster Keith B. Ibid, p.15.

³² . DISAM, Ibid, p.73.

foreign governments as an inducement or condition to purchase military goods and service including such benefits as coproduction, licensed production, subcontracting, technology transfer, in-country procurement, marketing, financial assistance, and joint ventures (DISAM, 2003: 246)

2. Type of Offset (Direct vs. Indirect) and Technology Transfer³³

Offset is divided into Direct and Indirect offset. And in the direct category, there is Technology Transfer which South Korea wants to get as offset the most. Let's look at these three definitions.

- Direct offsets- *A form of compensation to a purchaser involving goods which are directly related to the item being purchased.*

As an example, as a condition of a U.S. sale to a foreign purchaser, the U.S. contractor may agree to permit the purchaser to produce in its country certain components or subsystems of the weapon system the country is purchasing.

- Indirect offsets- *A form of compensation to a purchaser involving goods which are unrelated to the item being purchased.*

As an example, as a condition of a U.S. sale, the contractor may agree to purchase certain of the customer country's manufactured products, agricultural commodities, raw materials, or services.

- Technology Transfer – *The transfer of technology occurs as a result of an offset agreement (other than coproduction and licensed production) that may take form of research and development conducted in the buyer country, technical*

³³ . DISAM, Ibid, p.283.

assistance provided to the subsidiary or a joint venture in the foreign country between the U.S. manufacturer and the foreign entity

3. Case study

1) Success Offset – Korean Fighter Program

KFP was a good example of successful direct offset in 1991. South Korea needed new Fighter for the purpose of substituting old F-4 Phantom Fighter as well as wanted to get technology for making new training jet plane.

South Korea purchased twelve F-16 C/D fighters from General Dynamics (subsequently purchased by Lockheed), as well as 36 aircraft “kits” to be assembled in South Korea. Later it produced additional 72 F-16S under license (Hebert, 1998). And South Korea has capability which could make T-50 training plane which supported by Lockheed in 2001³⁴.

2) Negotiation offset Fail between the U.S and South Korea– Korean Helicopter Program³⁵

In December 2005, instead of with American Bell Company, South Korea made an agreement with the EADS (European Aeronautic Defense and Space company, France/German) produces new Helicopters that is worth around \$10billions. The point is that South Korea has the initiatives making the Helicopters and the EADS offering technology relevant with it and co-produce. However, the Bell Company only suggested reforming old its Helicopter adapting South Korea’s request.

D. GDP (Gross Domestic Product) AND PATENT FOR NATION’S LEVEL

³⁴ . Internet web source <http://100.naver.com/100.nhn?docid=771273>

³⁵ . Defense&Technology, South Korea, Jan 2006.

1. Introduction

The main process of this study is to get reasonable amount of FMS of South Korea according to correlation between amount FMS and Economy, Technology development, Military Expenditure, and dispute possibility in any other countries using regression model.

However, it is possible that there is a controversy what the author can use as an index for measuring Economy and Technology level of each country. In this study, I will use GDP for economy level and amount of patents granted by U.S Patent And Trademark Office (PATO)³⁶.

2. Role of GDP for evaluating nation's economic level

The definition of GDP (Gross Domestic Product) is that,

*The total market value of all final goods and services produced in a country in a given year, equal to total consumer, investment and government spending, plus the value of exports, minus the value of imports*³⁷.

GDP report is released on the last day of quarter and show the last quarter. It reflects nation's economy growth. For example, if GDP of the U.S was increased 7.2% on the third quarter in 2003, we can say that U.S economic growth surged in the third quarter at the fastest pace³⁸.

It goes without saying that GDP has used for index of Economy in many literatures. Panchak (2005) suggests that over the years U.S economists make efforts to represent better mirror economic changes and started to emphasize have made many changes GDP rather than GNP³⁹ as

³⁶ . There is no common international Patent cover all world. Just WIPO(World Intellectual Property Organization) set the common standard regulation for granting patent in each country. For example, if one set patent in 10 countries should set it each country.

(Korea Intellectual Property Office Q&A, www.kipo.go.kr/kpo/user.tdf)

So, in this study, the author assumes the patents granted by U.S PATO as Technology development. Because the U.S is the biggest market.

³⁷ . Invest world.com www.investorwords.com/2153/GDP.html

³⁸ .CNNmoney.com <http://money.cnn.com/2003/10/30/news/economy/gdp/index.htm>

the primary measure of U.S production in the globalization and information technology environment.

Swann (2006) analyzes the relation between several fields of economic indices and GDP assuming GDP growth means overall Economic index. Fosu (1996) demonstrated that the export effect on GDP growth was found to be positive and associated with overall economy in the less developed countries.

As we can see several previous researches, I can use GDP as the index for each country's economic level.

3. Role of Patents for evaluating nation's technology level

A patent is defined as below (Griliches, 1990),

An authorized governmental agency, granting the right to exclude anyone else from the production or use of a specific new device, apparatus, or process for a stated number of years

Gardner and Joutz (1996) construct a measure of technological innovation with patent filings and determine technological growth. Rossana (2005) assumed that technology stocks or the stock of knowledge are a function of utility patent data because, he thinks, technological progress is at least in part a consequence of new knowledge. Griliches (1990) asserted that patents statistics have fascinated economists for a long time for questions about sources of economic growth, the rate of technological change. And then he argued that patents are good index of inventive activity, a major aspect of which is also measured by R&D expenditures.

³⁹ . GDP includes only goods and services produced within the geographic boundaries of the U.S., regardless of the producer's nationality. GNP doesn't include goods and services produced by foreign producers, but does include goods and services produced by U.S. firms operating in foreign countries.
(www.investorwords.com/2153/GDP.html)

Although it is still controversial using of patent data in technological level from some literature, many economists have used it. Therefore, it is proper to use the value of patents for evaluating nation's technology level in this research.

III. METHODOLOGY

A. STUDY MODEL OVERVIEW

Based on the above hypothesis in chapter I and variables in chapter II, I set up the overall study model like below Figure 6.

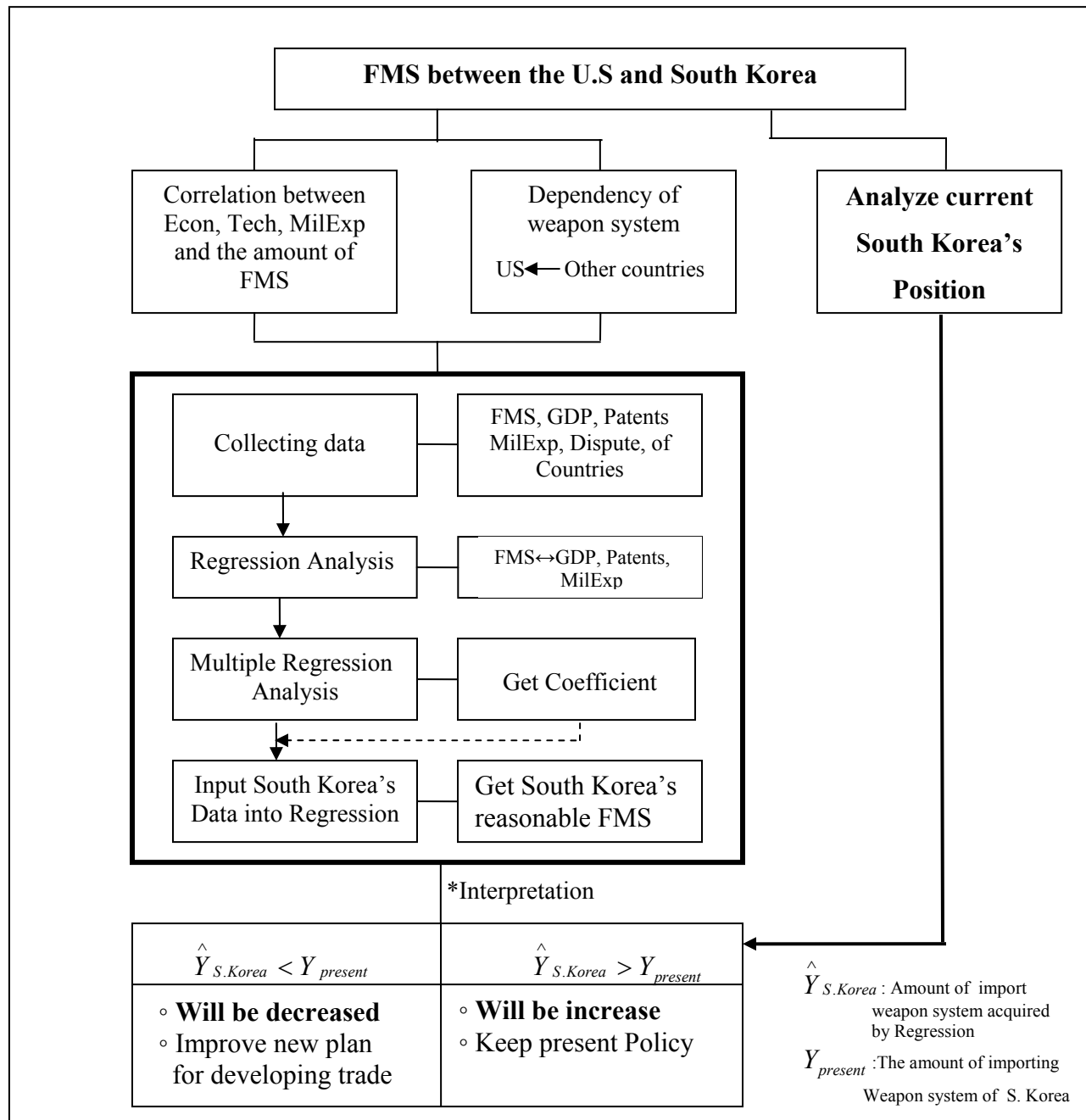


Figure 6. Study Model

The objective of this study is to inspect the dependency on FMS of South Korea as its Economy growing. To do this, at first begin examine the general relationship between the FMS amount and each country's Technology level, Military Expenditure representing its economy growing, and dispute probability using Multiple regression model. Then, apply to South Korea's case using the coefficients from the regression model. I assume if the amount of present FMS is beyond the amount predicted by the regression model, the FMS amount should be decreased gradually in the future because South Korea intends to diversify to develop its own weapon system technology with its economic and technology power unless the FMS policy is benefit to South Korea more than any other means.

B. DATA COLLECTION STRATEGIES

1. Overview

In this study, I need the data about FMS trade amount, GDP, Patents applications filed by residents of foreign countries, Military Expenditure, and dispute probability of countries. To guarantee the objectiveness of regression model, I need as many data as I can.

However for the purpose of matching this study's goal, I set up the necessary and sufficient conditions like below.

- 1) Collect recent five years data during 2001~2005.
- 2) Even one year's data omit, the country will be excluded.
- 3) Not aim to collect a specific country
- 4) Select the data that satisfy five elements; FMS, GDP, Patents, Military Expenditure, Dispute Probability (Threat by other countries).

2. Data collect

1) FMS Trade amount

I can get the data of which the buyer countries by way of FMS and the amount from DSAA (Defense Security Assistance Agency) Factbook 2005. It includes all the FMS data from 1950 to 2005 dividing into agreement and deliveries. I use the FMS agreement data in this study because the initial intention and neediness are important although the deliveries will be changed according to the countries' condition and the U.S' intention.

There are total 175 countries, but 40 countries which have not been traded during recent 5 years are excluded. So, I use 135 countries' data to analyze sum of FMS amount of each region. But for the hypothesis, I use only 61 countries' data which have all the data on FMS, GDP, Patents, and Military Expenditure, and dispute condition. The FMS trades data are shown Appendix B.

2) Economic development: GDP

GDP is used for measuring countries' economic development level. I can get the data of which countries' GDP from CIA (Central Intelligence Agency) world Factbook 2002~2006. There are overall 189 countries data. However, it is passed over at some countries in some periods. I use only the countries data which have perfect period's data. So, among 189 countries just will be available 142 countries. The GDP of countries are shown Appendix C.

3) Technology development: Patents

The amount of patent filed by Residents of foreign countries to the U.S patent agency will be used for measuring each country's technology development level. I can get the data from the U.S Patent and Trademark Office (UPTO) performance and accountability report 2005. There are two categories. One is patent application to the U.S and the other is approved by the agency. I will use the former data because the origin countries' intention for developing technology is important. In this study I assume that how much each country has intention to develop its own weapon system technology will influence the FMS amount. There are 155 countries' data available. The patents applied to the U.S. patents agency by foreign country residents are shown Appendix D.

4) Military Expenditure

I can get the data of countries' Military Expenditure from CIA (Central Intelligence Agency) world Factbook 2002~2006 also. It contains 152 countries' Military Expenditure data during recent five years. However there are many omissions in this category because some countries did not make public. So there are only 66 countries' data available perfectly recent five years to use in regression model. The Military Expenditure of each country is shown Appendix E.

5) Dispute probability

I refer to the above CIA world Factbook to classify a country is in dispute condition or threaten by others. There 209 countries' explanation. The country which does not have recent or progressing dispute with other countries is given "None". On the contrary, if the country has experiences conflict with others, the dispute probabilities are explained on the recent war experience, territory dispute with adjacent country until a recent date, and what factor is

remained to stir up troubles in the future. I just divide dispute probability into two categories; Yes or No. Therefore, it will be given by dummy variable in the regression model. The detailed dispute explanation of each country is shown Appendix F.

3. Data select

From the above progress, 61 countries can satisfy all the necessary conditions. I use these 61 countries' data to analyze for hypothesis 1, 2, 3, 4. However, in regarding of each regions characteristics on FMS, GDP, Patents, Military Expenditure level, and South Korea's current rank, I use all the data available. I divide the data into five areas. A summary of participating countries in this study is presented as Table 5.

Table 5. Data summary

(Number of countries)

| Categories | East Asia and Pacific | Near East /South Asia | Europe | Africa | Western Hemisphere | Total |
|-----------------------------|------------------------------|------------------------------|---------------|---------------|---------------------------|--------------|
| FMS transaction | 12 | 21 | 43 | 32 | 27 | 135 |
| GDP | 17 | 16 | 48 | 35 | 26 | 142 |
| PATENTS | 22 | 23 | 51 | 24 | 35 | 155 |
| Military Expenditure | 9 | 14 | 13 | 17 | 13 | 66 |
| Dispute | 31 | 29 | 59 | 50 | 40 | 209 |
| OVERLAP | 7 | 11 | 13 | 17 | 13 | 61 |

Source: Central Intelligence Agency (CIA) world Factbook, 2002~2006.

Defense Security Assistance Agency (DSAA) Factbook, 2005.

U.S Patent and Trademark Office (UPTO) performance and accountability report, 2005.

The detail data are shown Appendix G.

C. DATA ANALYSIS STRATEGY

1. Analysis Tool

I use MINITAB program to analyze the data. The statistic method for analyzing and verifying validity is *correlation analysis* using simple regression model between each independent variable⁴⁰ and dependent variable⁴¹ for hypothesis 1, 2, 3. *Correlation analysis* is the statistic method to show how strong two variables have the linear relationship.

As for hypothesis 4, I use Multiple correlation analysis using Multiple regression model to verify the relationship between FMS and four independent variables – Economic development, Technology level, Military Expenditure, and dispute condition. And to study on South Korea's reasonable FMS amount assumed in Chapter 1, I use multiple regression model too.

2. Methods of achieving validity and data Analysis procedure for hypothesis 1, 2, 3

I need to show the validity for objectivity whether there are mutual close relations between each independent variable and dependent variable. That is FMS-GDP, FMS-Patents, and FMS-Military Expenditure. I will use four independent variables to get the reasonable South Korea's FMS amount regarding South Korea's present conditions. In this analysis Technology and Military Expenditure level as independent variables represent how much each nation's Economy develop, and Dispute condition representing each nations' security condition. If there are not mutual relations among independent variables and FMS, I will not be able to estimate South

⁴⁰ . Independent Variables: GDP, Patents, Military Expenditure

⁴¹ . Dependent Variable: FMS amount

Korea's reasonable FMS amount exactly. Further more, even if I get the estimate FMS amount, I can not insist that the value is reasonable without validity.

Correlation analysis in simple regression model will be used for analyzing linear relations between each independent variable and FMS amount; Economic level and FMS, Technology level and FMS, Military Expenditures and FMS.

The below equation 3.1 used for analyze hypotheses 1, 2, and 3.

$$\hat{Y}_i = \alpha + \beta X_i + \varepsilon_i \quad (3.1)$$

where

$$\begin{aligned} \hat{Y}_i &= \$FMS \\ X_i &= GDP, \\ &\quad \text{Patents,} \\ &\quad \text{Military Expenditure} \\ \alpha &= \text{Constant} \\ \beta &= \text{Coefficient} \end{aligned}$$

Correlations between two factors are determined by *coefficient of determination* and *coefficient*. *Coefficient of determination* is denoted by r^2 . r^2 is represented how strong two variables have relation. r^2 is between “0” and “1”. The closer r^2 is near “1”, I can say that there is relation between two variables. On the contrary, if it is close to “0”, I can say that there is no relation.

Then *Coefficient* is denoted by β . β will be positive if the relation between one independent variable and FMS has positive relationship. That is as one independent variable increase, the dependent variable will be increased. But if β is negative, the relation will be reverse.

The correlation between four independent variables and FMS is shown by *coefficient of determination* gotten by using *multiple regression model*. It is denoted as R^2 . It is also placed between “1” and “0”, and show how strong these relations between these relations.

3. Data analysis procedure for predicting South Korea's FMS amount

The method for getting South Korea's reasonable FMS concerning four variables is *multiple regression model*. The formula is like below 3.2.

$$\hat{Y}_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \varepsilon_i \quad (3.2)$$

where,

$$\begin{aligned} \hat{Y} &: \text{Amount of FMS} \\ X_1 &: \text{Economy(GDP)} \\ X_2 &: \text{Technology(Patents)} \\ X_3 &: \text{MilitaryExpenditure} \\ X_4 &: \text{DisputePossibility} \\ \alpha &: \text{Constant} \\ \beta_1, \beta_2, \beta_3, \beta_4 &: \text{Coefficient} \end{aligned}$$

First, I input each four independent variable of 61 countries selected into each X_1, X_2, X_3, X_4 and input the FMS amount (dollar figure) of each country into Y . The value of GDP, Patents, Military Expenditure, and FMS amount is sum for five years during 2001~2005. And Dispute possibility is "0" or "1" as dummy. Then I get the constant and coefficient $\alpha, \beta_1, \beta_2, \beta_3, \beta_4$.

To get the reasonable South Korea's FMS amount, I input the coefficient and South Korea's data into formula 3.2. Then I get the new formula 3.3 like following.

$$\hat{Y}_{S.Korea} = \alpha + \beta_1 X_{S.Korea'sGDP} + \beta_2 X_{S.Korea'sPatent} + \beta_3 X_{S.Korea'sMilExpen} + \beta_4 X_{S.Korea'sDispute} \quad (3.3)$$

After getting the reasonable South Korea's FMS amount ($\hat{Y}_{S.Korea}$) considering other countries, I will compare reasonable amount and the present South Korea's FMS amount.

IV . RESULTS

A. VARIABLES COMPARISON AND SOUTH KOREA POSITION

1. FMS trade

During 2001~2005, the total FMS trade amount is 59,570 million dollars with all the 135 countries. Europe ranks the first region with \$17,487.739 million and that's almost 30% of the total FMS. Near East and South Asia region is right behind the Europe with \$16,553.62(27.8%) million dollars and East Asia and Pacific region very close to with \$16,358.32(27.4%) million. Western Hemisphere region is the last one with \$2,324.41(3.9%) million. Figure 7 displays the amount of FMS trade in each region.

(Million dollars)

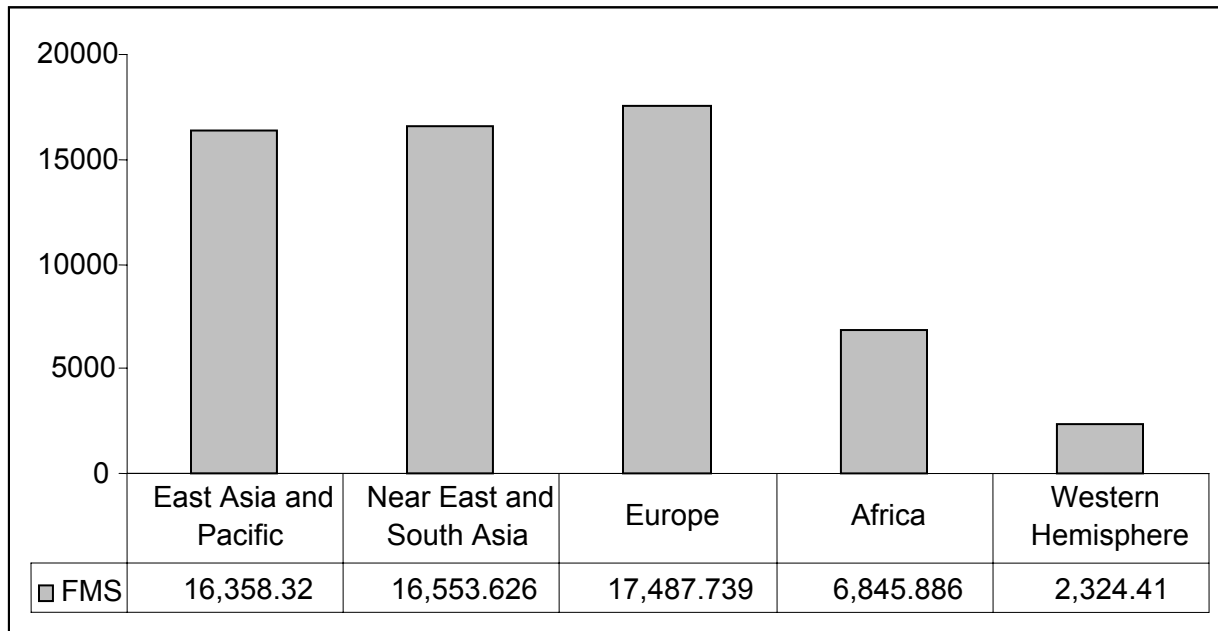


Figure 7. The amount of FMS trade (2001 ~ 2005)

Source: Defense Security Assistance Agency (DSAA) Factbook, Ibid, p.2~11.

Then, I looked at where South Korea stands. South Korea has imported \$3,840.44 million worth weapon system through FMS, and it is actually higher than Western Hemisphere total FMS amount. Table 6 shows where South Korea ranks among other FMS trade countries. South Korea is fifth buyer in the last 5 year. And especially in 2002, South Korea is placed first with \$1,838.27 million.

Table 6. Rank of big FMS trade countries (2001~2005) (Million dollars)

| Rank | Country | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|------|----------------|----------|----------|----------|----------|----------|----------|
| 1 | Egypt | 1,614.28 | 1,012.00 | 925.86 | 2,061.46 | 1,107.75 | 6,721.35 |
| 2 | Taiwan | 1,114.48 | 734.52 | 1,445.79 | 2,238.28 | 0.24 | 5,533.32 |
| 3 | Israel | 2,769.62 | 667.98 | 460.48 | 624.54 | 507.54 | 5,030.16 |
| 4 | Saudi Arabia | 680.51 | 851.56 | 653.30 | 1,785.13 | 747.93 | 4,718.42 |
| 5 | South Korea | 758.54 | 1,838.27 | 485.34 | 345.83 | 402.47 | 3,830.44 |
| 6 | Poland | 27.84 | 66.15 | 3,535.34 | 180.02 | 6.88 | 3,816.23 |
| 7 | Japan | 350.01 | 975.59 | 768.81 | 679.63 | 892.47 | 3,666.51 |
| 8 | Turkey | 122.85 | 186.70 | 427.41 | 168.99 | 1,330.60 | 2,236.55 |
| 9 | United Kingdom | 671.70 | 244.12 | 464.68 | 478.48 | 361.86 | 2,220.85 |
| 10 | Kuwait | 287.69 | 984.84 | 320.51 | 116.01 | 101.81 | 1,810.86 |

Source: Defense Security Assistance Agency (DSAA) Factbook, Ibid. p.2~3.

2. Economic development: GDP

Table 7. Higher GDP countries (2001~2005) (Billion Dollars)

| Rank | Country | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|------|--------------------|--------|--------|--------|--------|--------|--------|
| 1 | United States | 10,082 | 10,450 | 10,990 | 11,750 | 12,360 | 55,632 |
| 2 | China | 6,000 | 5,989 | 6,449 | 7,262 | 8,859 | 34,559 |
| 3 | Japan | 3,550 | 3,651 | 3,580 | 3,745 | 4,018 | 18,544 |
| 4 | India | 2,660 | 2,664 | 3,033 | 3,319 | 3,611 | 15,287 |
| 5 | Germany | 2,184 | 2,160 | 2,271 | 2,362 | 2,504 | 11,481 |
| 6 | United Kingdom | 1,520 | 1,528 | 1,666 | 1,782 | 1,830 | 8,326 |
| 7 | France | 1,540 | 1,558 | 1,661 | 1,737 | 1,816 | 8,312 |
| 8 | Italy | 1,438 | 1,455 | 1,550 | 1,609 | 1,698 | 7,750 |
| 9 | Brazil | 1,340 | 1,376 | 1,375 | 1,492 | 1,556 | 7,139 |
| 10 | Russian Federation | 1,270 | 1,409 | 1,282 | 1,408 | 1,589 | 6,958 |
| 11 | Canada | 928 | 934 | 959 | 1,023 | 1,114 | 4,958 |
| 12 | Mexico | 920 | 924 | 941 | 1,006 | 1,067 | 4,859 |
| 13 | South Korea | 920 | 942 | 858 | 925 | 965 | 4,610 |
| 14 | Spain | 828 | 851 | 886 | 938 | 1,029 | 4,531 |

I can not compare the GDP by region because there are some omissions data in countries. However, I can estimate where South Korea is placed because the countries' data which stand higher than South Korea are fulfilled. Table 7 shows the ranks of higher GDP countries and South Korea is positioned 13th rank. I can guess that South Korea buy weapon systems through FMS more than its economic level from Table 6, 7. That is, although South Korea is 13th country of economic development level but it places the amount FMS as 5th rank.

3. Technology development: Patents

Between last 5 years, in 2001~2005, the total amount of patents filed by residents of foreign

Source: Central Intelligence Agency (CIA) world Factbook, Ibid.

countries to the U.S patent agency is 758,822 regarding 155 countries. Among them, East Asia and Pacific is the first region with 446,930 and it is almost 59% of the total amount. Next, Europe applies 249,824(32.9%), Western Hemisphere applies 42,773(5.6%), Near East and South Asia apply 18,020(2.3%), and Africa applies 1,275(0.16%). Figure 8 shows the number of Patents applied to the U.S. by each region.

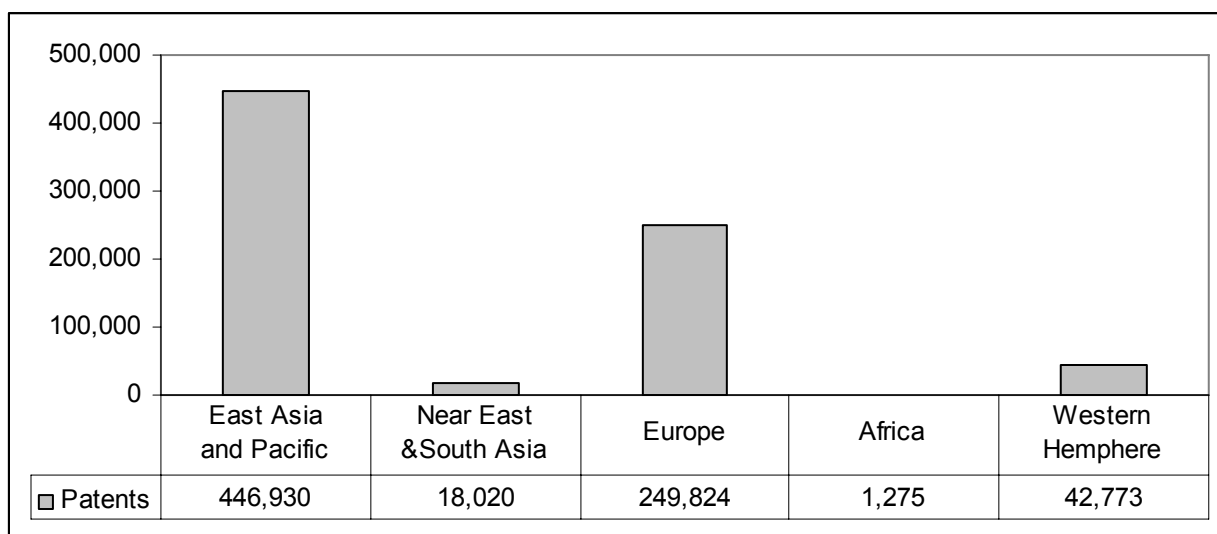


Figure 8.

The amount of patent filed by Residents of foreign countries to the U.S (2001~2005)

Source: U.S Patent and Trademark Office (UPTO) performance and accountability report, Ibid, pp.126~127.

However, I can not jump to a conclusion that East Asia and Pacific is the most applying region to the U.S and has the development technology. The reason is that, Japan applies 296,404 patents solely, and it is almost 63% of all the East Asia and Pacific region. Europe and Western Hemisphere may be the same. Most of patents applied by Europe are came form German, United Kingdom, and France with 162,218 (64.9%). And Canada in Western Hemisphere applies 38,921 (90.9%). That is, most of the technologies leading the world have been invented by some developed countries. As we can see Table 8 following, South Korea is the fourth country applied patents to the U.S recent 5 years, and it occupies about 6.4% of the world. Although I can not say that South Korea is the fifth (including the U.S) technology developed country in the world just with this data, but I can confirm that South Korea has been trying to develop technology and making advance actively.

Table 8. The higher countries applied Patents to the U.S. (2001~2005)

| Rank | Country | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|------|----------------|--------|--------|--------|--------|--------|---------|
| 1 | Japan | 62,676 | 61,259 | 61,177 | 46,267 | 65,025 | 296,404 |
| 2 | Germany | 19,776 | 21,657 | 19,646 | 11,904 | 18,245 | 91,228 |
| 3 | Taiwan | 12,403 | 13,761 | 14,537 | 13,129 | 16,865 | 70,695 |
| 4 | South Korea | 6,792 | 7,757 | 9,614 | 9,730 | 15,200 | 49,093 |
| 5 | Canada | 7,802 | 7,967 | 8,138 | 6,705 | 8,309 | 38,921 |
| 6 | United Kingdom | 8,464 | 9,238 | 8,215 | 5,013 | 7,275 | 38,205 |
| 7 | France | 7,154 | 7,434 | 6,887 | 4,296 | 6,298 | 32,069 |
| 8 | Italy | 3,185 | 3,336 | 3,325 | 2,208 | 3,170 | 15,224 |
| 9 | Netherlands | 2,822 | 3,074 | 2,382 | 1,743 | 2,938 | 12,959 |
| 10 | Israel | 2,781 | 2,737 | 2,611 | 1,840 | 2,827 | 12,796 |

Source: U.S Patent and Trademark Office (UPTO) performance and accountability report, Ibid, pp.126~127.

4. Military Expenditure and Dispute condition

As briefly stated above Chapter I, South Korea's Military Expenditure is eighth in 2005 and the same during last 5 years. South Korea has expensed more with the Military field compared with its GDP. I can consider this phenomenon relate with dispute condition because if the county

has undergone confliction with other countries or has high possibility for war in the near future, it would make an investment on developing military power. South Korea is the same case. South Korea has threatened by North Korea constantly since the Korean War and should prepare the war. And it needs to cope with future related with adjacent strong countries.

Figure 9 shows that how many countries confront with other countries. It is presented by percentage which denotes in the ratio of undergoing dispute now and near future to all the countries in the region. Most of the Asia countries have undergone conflicts and other areas are not better much.

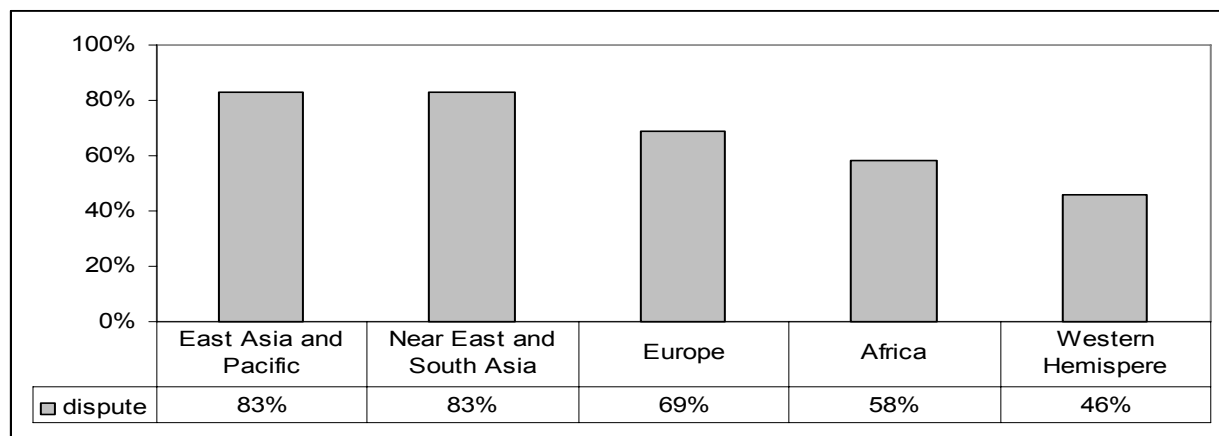


Figure 9. Dispute country percentage by areas (standard 2005)

Source: Central Intelligence Agency (CIA) world Factbook, Ibid.

B. VARIABLES CORRELATIONS

1. FMS-Economic development level (GDP) correlation

Table 9 shows *Coefficient of determination* (r^2) and *Coefficient of correlation* (r) between FMS amount and GDP in each region and the world. And it also demonstrates the constant and coefficient acquiring by regression model using formula 4.1.

$$\hat{Y}_i = \alpha + \beta X_i + \varepsilon_i \quad (4.1)$$

where

$$\begin{aligned} \hat{Y}_i &= \$FMS \\ X_i &= GDP \end{aligned}$$

Table 9. The result of correlation and regression analysis: FMS & GDP (2001~2005)

| Independent Variable | Results | World | East Asia /Pacific | Near East /South Asia | Europe | Africa | Western Hemisphere |
|----------------------|---------------------------------|-------------------------------------|-----------------------|-------------------------|----------------------|-----------------------|-----------------------|
| GDP | r | 0.680 (0.000) | 0.957 (0.001) | - 0.004 (0.992) | 0.854 (0.009) | 0.341 (0.180) | 0.470 (0.105) |
| | r ² | 0.463 | 0.915 | 0.000 | 0.730 | 0.118 | 0.221 |
| | r ² _(adj) | 0.454 | 0.898 | 0.000 | 0.705 | 0.058 | 0.150 |
| | α | 91.48 (0.186) | 112.3 (0.582) | 297.7 (0.075) | 223.6 (0.272) | 4.271 (0.106) | 54.53 (0.552) |
| | β | 0.00012535 (0.000) | 0.00019694 (0.001) | - 0.00000034 (0.992) | 0.0001523 (0.009) | 0.00000361 (0.180) | 0.00005617 (0.105) |

Note. (): p-value

From equation table 9, the p -value for constant α is not significant with 0.186. With this p -value, I can not estimate the exact relationship between FMS and GDP. So, I modify the equation 4.1 into equation 4.2.

$$\begin{aligned}\hat{Y}_i &= \beta X_i \\ \hat{Y}_i &= \$FMS \\ X_i &= \$GDP\end{aligned}\tag{4.2}$$

With this modified equation 4.2, I can get the result in table 10. In this table, the p -value for *Coefficient of determination* (r^2) and coefficient β is significant with 0.0000 and *Coefficient of determination* is 0.463 in the world.

By the regions, *Coefficient of determination* in East Asia and Pacific region is 0.915. That is to say, GDP influences on FMS amount 91.5%, and β is positive with 0.000204. The FMS amount of this region is explained by GDP well. Namely, as the country's GDP rise, the nation imports weapon system through FMS more. And Europe's FMS amount is also influenced by GDP as well. It is about 73% and positive. However Near East and South Asia, Africa, and Western Hemisphere region are not influenced by GDP. Near East and South Asia, and Africa region's relation between FMS amount and GDP is not at all with 0%. And Western Hemisphere region's *Coefficient of determination* is just 22.1%.

*Hypothesis 1*⁴² is supported with 46.3% of the index in the world. In conclusion, the index shows that a country's FMS amount is related with its GDP about 46.3%. And it is significantly suggested if the country wealthy, it buys weapon system more through FMS in the world with index coefficient β 0.000136.

⁴² . Hypothesis 1: The relation between Economic development and the amount FMS is positive

Table 10. The **modified** result of correlation and regression analysis: FMS & GDP (2001~2005)

| Independent Variable | Results | World | East Asia /Pacific | Near East /South Asia | Europe | Africa | Western Hemisphere |
|----------------------|---------------------------------|-----------------------------|---------------------|-----------------------|---------------------|---------------------|---------------------|
| GDP | r | 0.680 (0.000) | 0.957 (0.001) | - 0.004 (0.992) | 0.854 (0.009) | 0.341 (0.180) | 0.470 (0.105) |
| | r ² | 0.463 | 0.915 | 0.000 | 0.730 | 0.118 | 0.221 |
| | r ² _(adj) | 0.454 | 0.898 | 0.000 | 0.705 | 0.058 | 0.150 |
| | β | 0.000136 (0.000) | 0.000204 (0.000) | 0.000026 (0.457) | 0.000187 (0.000) | 0.000005 (0.054) | 0.000067 (0.023) |

2. FMS – Technology level (Patents) correlation

Table 11 shows that the indices of correlation and regression analysis between FMS amount and Patents amount in each region and the world. I also get the constant and coefficient using regression model with formula 4.3.

$$\hat{Y}_i = \alpha + \beta X_i + \varepsilon_i \quad (4.3)$$

Where,

$$\hat{Y} = \$FMS$$

$$X_i = \$Patents$$

As we can see in the table 11, *Coefficient of determination (r^2)* between FMS amount and patents in the world is 0.582. That is *Hypothesis 2*⁴³ is supported about 58.2% and the *p*-value for constant and coefficient are significant. This index is also very different by region such like FMS-GDP relation. East Asia and Pacific and Western Hemisphere regions are relatively high with each 0.859 and 0.707. And *Coefficient β* explains that there are positive relations between two factors with each 0.011597 and 0.022537. These values show that if a country's technology development level is high, it would get weapon system through FMS from the U.S.

However Near East and South Asia, and Africa regions' *Coefficient of determination (r^2)* is nearly zero. This means that there are almost no relations between FMS amount and Technology development level in these regions. As for world, coefficient of determination (r^2) is 58.2% and has positive relation with coefficient β value 0.012882. Therefore, I can say that hypothesis 2 is supported.

⁴³ . Hypothesis 2: The relation between Technology development and the amount FMS is positive

Table 11. The result of correlation and regression analysis: FMS & PATENTS(2001~2005)

| Independent Variable | Results | World | East Asia /Pacific | Near East /South Asia | Europe | Africa | Western Hemisphere |
|----------------------|---------------|-----------------------------|---------------------|-----------------------|-------------------|-------------------|---------------------|
| PATENTS | r | 0.763 (0.000) | 0.927 (0.003) | - 0.006 (0.987) | 0.652 (0.016) | 0.285 (0.267) | 0.841 (0.000) |
| | r^2 | 0.582 | 0.858 | 0.000 | 0.426 | 0.081 | 0.707 |
| | $r^2_{(adj)}$ | 0.575 | 0.831 | 0.000 | 0.373 | 0.020 | 0.680 |
| | α | 202.69 (0.001) | 273.1 (0.298) | 298 (0.066) | 242 (0.260) | 4.83 (0.066) | 69.69 (0.169) |
| | β | 0.012882 (0.000) | 0.011597 (0.003) | - 0.00166 (0.987) | 0.0372 (0.016) | 0.0105 (0.267) | 0.022537 (0.000) |

Note. (): p -value

3. FMS – Military Expenditures correlation

Table 12 shows the indices correlation and regression analysis between FMS and Military Expenditure in each region and the world. The formula used in this regression model is like below formula 4.4.

$$\hat{Y}_i = \alpha + \beta X_i + \varepsilon_i \quad (4.4)$$

where

$$\begin{aligned} \hat{Y} &= \$FMS \\ X_i &= \$MilitaryExpenditure \end{aligned}$$

However with this equation, the p -value for the constant α is not significant with 0.141. With this equation, I can not get the exact relationship between FMS and Military Expenditure either. So, I modify this like equation 4.5.

$$\hat{Y}_i = \beta X_i \quad (4.5)$$

where

$$\begin{aligned} \hat{Y}_i &= \$FMS \\ X_i &= \$MilitaryExpenditures \end{aligned}$$

As we can see from the table 13, the p -value for *Coefficient of determination* (r^2) and coefficient β are significant with 0.0000. And the *Coefficient of determination* between FMS amount and Military Expenditure in the world is 0.578. That is, *Hypothesis 3*⁴⁴ is supported about 57.8% by this index. And, the coefficient β is positive with 0.0108 values as hypothesis 3 is suggested.

The same as above two cases, FMS-Military Expenditures relationship is much different by region. For instance, the *Coefficient of determination* (r^2) indices of East Asia and Pacific is 0.990. It is very strong supporting with nearly “1”. However, Near East and South Asia, and Africa regions are both very low nearly zero.

⁴⁴ . Hypothesis 3: The relation between Military Expenditures and the amount FMS is strongly positive

Table 12. The result of correlation and regression analysis: FMS & Military Expenditure (2001~2005)

| Independent Variable | Results | World | East Asia /Pacific | Near East /South Asia | Europe | Africa | Western Hemisphere |
|----------------------|---------------------------------|-----------------------------|--------------------|-----------------------|--------------------|-------------------|--------------------|
| Military Expenditure | r | 0.758 (0.000) | 0.995 (0.000) | 0.051 (0.082) | 0.636 (0.019) | 0.195 (0.454) | 0.665 (0.013) |
| | r ² | 0.578 | 0.99 | 0.030 | 0.404 | 0.038 | 0.442 |
| | r ² _(adj) | 0.568 | 0.988 | 0.000 | 0.350 | 0.000 | 0.392 |
| | α | 89.11 (0.141) | 63.83 (0.379) | 284.5 (0.105) | 297 (0.160) | 4.54 (0.120) | 12.5 (0.873) |
| | β | 0.010075 (0.000) | 0.01738 (0.000) | 0.00101 (0.882) | 0.00588 (0.019) | 0.0005 (0.454) | 0.0107 (0.013) |

Note. (): p-value

Table 13. The **modified** result of correlation and regression analysis: FMS & Military Expenditure (2001~2005)

| Independent Variable | Results | World | East Asia /Pacific | Near East /South Asia | Europe | Africa | Western Hemisphere |
|-----------------------------|---------------------------------|---------------------------|--------------------|-----------------------|--------------------|--------------------|--------------------|
| Military Expenditure | r | 0.758 (0.000) | 0.995 (0.000) | 0.051 (0.082) | 0.636 (0.019) | 0.195 (0.454) | 0.665 (0.013) |
| | r ² | 0.578 | 0.99 | 0.030 | 0.404 | 0.038 | 0.442 |
| | r ² _(adj) | 0.568 | 0.988 | 0.000 | 0.350 | 0.000 | 0.392 |
| | β | 0.0108 (0.000) | 0.0178 (0.000) | 0.00717 (0.277) | 0.00776 (0.001) | 0.00102 (0.106) | 0.0110 (0.002) |

Note. (): p-value

C. DETERMINE APPROPRIATE EQUATION FOR PREDICTING SOUTH KOREA'S FMS AMOUNT

The first equation for predicting reasonable South Korea's FMS trade amount is like equation 4.6. In this equation dependant variable is each country's FMS trade and four independent variables are GDP, Patents, Military Expenditure, and dispute condition.

$$\hat{Y}_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \varepsilon \quad (4.6)$$

Where

\hat{Y} : Amount of FMS
 X_1 : Economy(GDP)
 X_2 : Technology(Patents)
 X_3 : MilitaryExpenditure
 X_4 : DisputePossibility
 α : Constant
 $\beta_1, \beta_2, \beta_3, \beta_4$: Coefficient
 i : Each country

Table 14 shows values of *Coefficient of determination* (R^2), constant, and coefficient. The *Coefficient of determination* is strong with 0.72. However, the p -value for constant α , and coefficient β_1 in the world are not significant each with 0.717, and 0.333. With this value, I can not predict exact South Korea's FMS trade amount and it will be useless although there are strong relations among FMS and four variables. Therefore, I need to modify this equation to get more reliable values in the *Coefficient of determination* and p -value.

Table 14. The result of Multiple Regression Analysis: FMS and four independent variables with α

| Independent Variables | Results | World | East Asia and Pacific | Near East and South Asia | Europe | Africa | Western Hemisphere |
|--|-------------|----------------------|-----------------------|--------------------------|---------------------|---------------------|----------------------|
| GDP / Patents / Military Exp / Dispute Con | R^2 | 0.720 | 1.000 | 0.146 | 0.574 | 0.377 | 0.945 |
| | R^2 (adj) | 0.700 | 1.000 | 0.000 | 0.361 | 0.170 | 0.917 |
| | α | 27.5 (0.717) | -56 (0.993) | 352.605 (0.416) | -15 (0.958) | -16.57 (0.670) | -15.32 (0.973) |
| | β_1 | -0.000025 (0.333) | 0.0000254 (0.051) | 0.000146 (0.751) | 0.000183 (0.422) | 0.000026 (0.153) | 0.0000234 (0.002) |
| | β_2 | 0.00829 (0.000) | 0.00539 (0.003) | 0.0041 (0.969) | 0.027 (0.448) | 0.0778 (0.219) | 0.0084 (0.038) |
| | β_3 | 0.00725 (0.000) | 0.0225 (0.000) | 0.0346 (0.482) | 0.0057 (0.578) | 0.000066 (0.944) | 0.0382 (0.001) |
| | β_4 | 163 (0.089) | 4.71 (0.644) | -229.152 (0.651) | 354.02 (0.330) | 6.902 (0.161) | 33.562 (0.558) |

Note. (): p -value

The modified equation is like equation 4.7. This equation comes from equation 4.6 without α because the p -value for α is the least significant with 0.717.

$$\hat{Y} = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \quad (4.7)$$

where

$$\begin{aligned} \hat{Y} &: FMS \\ X_1 &: GDP \\ X_2 &: Patents \\ X_3 &: MilitaryExp \\ X_4 &: DisputeCon \\ \beta_1, \beta_2, \beta_3, \beta_4 &: Coefficient \end{aligned}$$

Table 15 presents the result of multiple regression analyze just in the world. However even with this equation, I can not predict exactly South Korea's FMS trade amount because the p -value for coefficient β_1 is not significant with 0.344 although *Coefficient of determination* (R^2) is raised to 0.7704.

Table 15.

The result of Multiple Regression Analysis: FMS and four independent variables without α

| Independent Variables | R^2 | R^2 (adj) | β_1 | β_2 | β_3 | β_4 |
|---|--------|-------------|----------------------|---------------------|---------------------|-------------------|
| GDP, Patents, Military Exp, Dispute Con, | 0.7704 | 0.7408 | -0.000024 (0.344) | 0.008159 (0.000) | 0.007327 (0.000) | 188.44 (0.005) |

Note. (): p -value

From this result, I need to modify again. Equation 4.8 comes without constant α and one independent variable (GDP) which have not significant p -value.

$$\hat{Y}_i = \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} \quad (4.8)$$

where

$$\begin{aligned} Y &: \text{Amount of FMS} \\ X_1 &: \text{Techno log y(Patents)} \\ X_2 &: \text{MilitaryExpenditure} \\ X_3 &: \text{DisputePossibility} \\ \beta_1, \beta_2, \beta_3 &: \text{Coefficient} \end{aligned}$$

Table 16.
The result of Multiple Regression Analysis: FMS and three independent variables without α

| Independent Variables | Results | World | East Asia and Pacific | Near East and South Asia | Europe | Africa | Western Hemisphere |
|---|----------------------------|-------------------------|-----------------------|--------------------------|-----------------|-----------------|--------------------|
| Patents / Military Exp / Dispute Con | R² | 0.767 | 1.000 | 0.36 | 0.738 | 0.446 | 0.829 |
| | R² (adj) | 0.741 | 1.000 | 0.22 | 0.525 | 0.239 | 0.799 |
| | β_1 | 0.00759 (0.000) | -0.00432 (0.000) | -0.525 (0.250) | 0.0313 (0.320) | 0.014 (0.384) | 0.0165 (0.008) |
| | β_2 | 0.006162 (0.000) | 0.0231 (0.000) | 0.0367 (0.228) | 0.00117 (0.828) | 0.00027 (0.744) | 0.00459 (0.099) |
| | β_3 | 173.08 (0.007) | 22.8 (0.117) | 20.2 (0.935) | 443 (0.078) | 8.64 (0.019) | 87.3 (0.180) |

Note. (): p -value

In the Table 16, I can see that the *Coefficient of determination* (R^2) is 76.7% and adjusted with 74.1% in the world with 61 included countries. From this result I can say that three independent variables can be approximately 76.7% attributed to predict FMS amount in the *Multiple regression model*. In addition to this, the p -values for coefficient $\beta_1, \beta_2, \beta_3$ are significant with 0.000 and 0.007. This result allows me to proceed with the study.

As for the *Coefficient of determination* by the region, East Asia and Pacific's FMS amount can be predicted by three variables totally with 100%. However in two regions, Near East / South Asia and Africa, the *Coefficient of determination* (R^2) is just each 14% and 37.7%. Especially adjusted indices indicate that the four independent variables in two regions are low to predict FMS amount with each 0% and 17.7%.

At the following section, I will predict South Korea's FMS amount using the coefficient gotten from the same formula 4.8 and analyze South Korea's current status relevant to FMS program.

D. SOUTH KOREA'S REASONABLE AND CURRENT FMS AMOUNT ANALYSIS

1. Input coefficients

Table 16 shows that the indices of three coefficients ($\beta_1, \beta_2, \beta_3$) using Multiple regression analysis in each region and the world. To guess South Korea's FMS amount between 2001~2005, I use the coefficient gotten from Multiple regression model of the world. In this indices, because coefficient $\beta_1, \beta_2, \beta_3$ are very significant with p -value each 0.000 and 0.007, I can predict exact South Korea's FMS trade amount.

I input the indices into below formula 4.9 .

$$\hat{Y}_{S.Korea} = 0.00759X_1 + 0.006162X_2 + 173X_3 \quad (4.9)$$

where

$\hat{Y}_{S.Korea}$: Predicting FMS amount of South Korea
 X_1 : Patents of South Korea
 X_2 : Military Expenditure of South Korea
 X_3 : Dispute probability of South Korea (dummy)

2. Current status of South Korea

To predict reasonable South Korea's FMS amount, I input South Korea's data into formula 4.9. As stated above section A, South Korea's current status can be summarized like Table 17.

Table 17. Current status of South Korea(2001~2005)

| Category | PATENTS | Military Expenditure | Dispute probability | Current FMS amount |
|----------|------------------------|----------------------------------|---------------------|------------------------------------|
| Status | 49,093 cases | 77,646 Million Dollars | Yes | 3,830.44 Million Dollars |

As for dispute probability, I set "Yes" and dummy variable in regression model will be "1", because currently Military Demarcation Line within the 2.5 mile wide *Demilitarized Zone* has separated North from South Korea in the Korean Peninsula since 1953 and periodic maritime disputes with North Korea over the Northern Limit Line. In addition, South Korea and Japan claim the authorization for the small island (*Dok-do*) occupied by South Korea since 1954⁴⁵.

3. Compare predict and current South Korea's FMS amount

Using both formula 4.9 and Table 17, I can estimate South Korea's FMS amount between

⁴⁵ . Central Intelligence Agency(CIA) World Factbook, October 17, 2006.
www.cia.gov/cia/publications/factbook/fields/2070.html

2001 ~ 2005 through below formula 4.10.

$$\hat{Y}_{S.Korea} = 0.00759 * (49,093) + 0.006162 * (77,646) + 173 * (1) \quad (4.10)$$

$$= 1,024.07 \text{ Million Dollars} \quad (4.11)$$

Where,

$$\hat{Y}_{S.Korea} : \text{Predicting FMS amount of South Korea}$$

The result points out that the South Korea's reasonable FMS amount based on the current South Korea's status is about 1,024.07 Million Dollars. However, as we can see from Table 17, the real current South Korea's FMS amount during recent 5 years is 3,840.44 Million Dollars. That is to say, South Korea imported weapon system through FMS about 3.7 times more than its predicting amount between 2001~2005.

V . DISCUSSION AND CONCLUSIONS

A. FINDINGS

Based upon regression analysis between FMS and each independent variable; Economic, Technology, Military Expenditure level, I can know that the relation strengths are differentiated with region. And as for overall world, the relation between FMS and Economic level is related with 46.3%. And as regard the relation between FMS and Technology level is related with 58.2% and as for the relation between FMS and Military Expenditures related with 57.8%. And I can find that all the relations are positive from the value of coefficient β as I assumed the relations between FMS and Economic, Technology level, and Military Expenditure will be positive as Hypothesis. Specifically, I can observe that certain region, East Asia and Pacific, has strong relations all the criteria.

As saying the current status of South Korea, FMS trade amount during the last five years is fifth ranks while its Economic rank is thirteenth and Technology is fourth. In addition, South Korea expends for Military eighth in the world. Considering the positive relations between FMS amount and economy, technology, and military expenditure level, South Korea's FMS amount could be much overall because its current status is ranked high in all the fields. However, the data shows that South Korea spends more money for FMS even regarding its Economic, technology, and Military Expenditure level. From the result of *Multiple regression model*, I find that South Korea imports weapon system through FMS about 3.7 times more than its predicting value based on current South Korea Economic, Technology, Military Expenditure level, and dispute situation. That is to say, South Korea is very dependent on the FMS currently.

B. DISCUSSION

I set the hypothesis 1, 2 , and 3 for the purpose of supporting hypothesis 4. That is, South Korea's present FMS amount may be much regarding current South Korea's status on the Economic, Technology level and Military Expenditure as I set hypothesis 4. Namely, as we can see from the former chapter, because South Korea's economic rank is 13th and technology level is 4th in the world during recent 5 years, its FMS amount may be less than now although the hypothesis 1, 2 is accepted. And, I can know from the result that if the nation wealthy and have high technology, the nation will import weapon system more from the U.S. through FMS. As for hypothesis 3⁴⁶ , I can know that if the nation invests more on the military field, it buys more the weapon system also as I suggested before.

As we can see from the results concerning hypothesis 4⁴⁷ , South Korea buys the weapon system by about 3.7 times than that of its predicting amount. This result is much more than I expected even though I assume this value will be high. And this result is supported strongly.

1. FMS-Economic development

The relation between FMS amount and economic development is positive. That is, if the nation is afforded to spend more money, it can buy the weapon system from the U.S. more. As for South Korea, we can assume that South Korea increase importing the amount of weapon system through FMS as its economy growing. However, if we compare the FMS rank and the GDP rank on the last 5 years, we can find that the FMS amount is much more considering its GDP rank. The GDP rank is 13th , on the other hand the FMS rank is 5th between 2001~2005.

⁴⁶ . Hypothesis 3: The relationship between Military Expenditures and the amount FMS is positive

⁴⁷ .Hypothesis 4: The amount of FMS of South Korea is beyond the level of its economic development, technology development, Military Expenditure level, and dispute probability.

From this reason, I can judge that South Korea is very dependent on the FMS considering its economic level.

2. FMS-Technology development

In the same way with GDP, the relation between FMS and Technology is positive. That is, if the nation's technology level is high, it would import weapon system from the U.S. more. South Korea applied the patents to the U.S. with the 4th rank in the last 5 years. And actually, South Korea enhances its technology level very much including military field in the last decade. South Korea was just able to make the rifles and small conventional weapons by early 1980s. But, it can make many high technology weapon systems such as tank, cruise missile, and even warfighters with its own technology now⁴⁸. On the other hand, South Korea has many fields which it should develop more to achieve self reliance defense power because it is short of infrastructures. I analyze the amount of application patent as the current volition for developing technology. In other word, South Korea has tried to develop technology in the field of military as well as industry though it has short period of industrialize. As for the hypothesis 2, it is consistent that South Korea imports weapon system 5th rank and the volition of develop technology is 5th too, if include the U.S.

The respect which we should concern is that the highest technology nations such as Japan, Taiwan, South Korea, UK, and Israel are in the Top 10 FMS amount countries. And even Germany⁴⁹ and France⁵⁰ that can produce high – tech weapon system are in a high position in the FMS amount though they are not in the top 10. I conclude that even high technology nations try to acquire new technology from the U.S. through trade weapon system in the form of offset, co-

⁴⁸ . VTR source: 'South Korea's development weapon system', 2005.

⁴⁹ . Rank 20th, with 843 million dollars(2001~2005)

⁵⁰ . Rank 22th, with 631 million dollars(2001~2005)

production, or co-research.

3. FMS-Military Expenditure

The relation between FMS amount and Military Expenditure is positive as hypothesis 3 suggested. That is, if the nation spends in the field of military more, it would buy weapon system from the U.S. more. We can see this relation by way of comparing Table 1⁵¹ with Table 6⁵² as well. 4 of top 10 military expenditure countries including South Korea are in the top 10 FMS amount.

South Korea is one of the highest military expenditure countries with the rank of 8th. However, considering the FMS amount rank, we can assume that South Korea is still very dependent on the FMS.

4. Compare current and predicting FMS amount of South Korea

As we can realize by the result, South Korea's current FMS amount is about 3.7 times more than reasonable amount. This result is already foreseen by preceding three relations. In addition, this result is not explained easily even considering the military tension around the Korean Peninsula. Therefore, this result shows that South Korea is very dependent on the FMS and probably may change this trend gradually. The reasons are that South Korea is not satisfied with the FMS policy and its inflexibility on the technology transfer as several researchers suggested in the chapter II although the U.S. Government reformed it. And this change began⁵³.

Especially from South Korea's view point, the importing weapon system is not mere mean of

⁵¹ . Table 1 shows Military Expenditure rank order

⁵² . Table 6 shows rank of big FMS trade countries in 2001~2005

⁵³ . Maj Ji Man Roh, ROK Air Force,(Interview, Nov 6, 2006).

the strengthening of war potential presently, but rather important way of acquiring high military technology for achieving self-reliant defense power in the future. As I said at chapter I and III, South Korea may seek for more alternative ways to acquire more high technologies helping for developing its defense potential if current FMS amount is not adapt for South Korea's line of policy for acquiring technology. For example, South Korea possess the capability for constructing submarines through offset relevant importing submarine from German since 1992 and will co-product Helicopters with EADS (European Aeronautic Defense and Space Company) on the condition of share the technology.

However, the U.S. and South Korea have maintained strong alliance for more than 50 years through free assistance and FMS, and it symbolizes the close relationship between them. The strong relation between two countries will be more needed for not only South Korea's security but also the U.S. profit in the Northeast Asia region. Therefore, the FMS should develop more in the future if the condition is appropriate to both countries.

C. CONCLUSION

I find that South Korea has imported weapon system through FMS about 3.7 times more than estimating amount considering its several statuses. Although, South Korea has developed its economy, technology, and spends much money on the military, 3.7 times spending is abnormal in general. If so, what causes this phenomenon happens? Why South Korea has been dependent on the U.S to that extent different with other countries? We can find these causes from historical and security circumstance bases.

It is obvious that this amount is too much considering South Korea's status, however there are unavoidable and right reasons regarding its security environment and history between two

countries. That is, South Korea has been supported military as well as economy, political, and etc since the Korean War and it has kept its security with the U.S' support and concern. In addition, the U.S gave many aids for South Korea to stand on its own feet in the field of economy and politics. Besides, South Korea has had very unstable security circumstance. It has stood face to face with North Korea, and the powerful countries such as the U.S, Japan, China, and Russia confront each other around South Korea because it has been important region strategically for Democratic and Communism. These reasons make South Korea keep very strong military power abnormally considering its conditions, and South Korea has been very dependent on the U.S for its security. Therefore, it may happen so much importing weapon system amount of South Korea is normal.

The big premise of the U.S for selling weapon system to foreign countries is its national benefits and security, and FMS has been a big frame supporting the strong alliance between the U.S and South Korea. Therefore, it is true that if South Korea imports weapon system more in the future, it will be advantage to the U.S also. For that reason, it will be very helpful to study development plan between two countries on the weapon system trade.

D.RECOMMENDATION FURTHER STUDY

In this study, I use three variables to predict South Korea's FMS amount based on the current its status: Technology, Military expenditure level, and dispute probability. As the indices for the Technology level, I use Patents cases applied to the U.S. from each foreign country. And I apply dummy variable for the dispute condition of each countries regardless of dispute strength and the number of times. Although I get the reliability with 76.67% (adj 74.14%) from the result of the *Multiple regression model* for predicting South Korea's FMS amount, we need to study more

what indices will be appropriate for raising the reliability on predicting South Korea's FMS amount. For instance, we may apply different variable for measuring each country's Technology level not using Patents. And, as for dispute probability, there may be some controversies because the dispute strength and probability is different from countries' situations. For example, South Korea has more serious security problems compare to New Zealand although two countries are set "1" as dummy variable. South Korea confront with strong enemy at face, on the other hand New Zealand just asserts a territorial claim in Antarctica. They can be set different numerous variables if more study completed in the future.

As for FMS development plan, it is need to research more detail what several researchers done so far. Preceding research just pointed out that there are some inequities with the FMS policy, but could not suggest the direction for how the policy develops. And, South Korean has been unsatisfactory that it has not been treated as a big buyer. On the other side some countries such as NATO members, Japan, Australia, and New Zealand have been treated as "exempted countries" and gotten several favors from the U.S. Government although they import less weapon system than South Korea. So, it is need to consider reforming policy that the country more buy, the more favors got.

Appendix A. ABBREVIATION

| | |
|---------------|---|
| CFC: | US-ROK Combined Forces Command |
| SCM: | US-ROK Security Consultative Meeting |
| EEZ: | Exclusive Economic Zone |
| FMS: | Foreign Military Sale |
| DSAA: | Defense Security Assistance Agency |
| WMD: | Weapon of Mass Destruction |
| OPCON: | Wartime Operational Control |
| DAPA: | Defense Acquisition Program Administration in South Korea |
| AECA: | Arms Export Control Act |
| FAA: | Foreign Assistance Act |
| SAAC: | Security Assistance Accounting Center |
| FFB: | Federal Financing Banks |
| MDE: | Major Defense Equipment |
| DSCA: | Defense Security Cooperation Agency |
| DISAM: | Defense Institute of Security Assistance Management |
| MAP: | Military Assistance Program |
| LOR: | Letter of Request |
| LOO: | Letter of Offer |
| LOA: | Letter of Accept |
| KFP: | Korean Fight Program |
| PATO: | Patent And Trademark Office |

Appendix B. FMS trade

East Asia and Pacific

| Countries | Foreign Military Sales Agreements(Dollars in Millions) | | | | | |
|--------------------|--|----------|----------|----------|---------|----------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Australia | 157.124 | 169.271 | 389.242 | 478.278 | 379.984 | 1573.899 |
| Fiji | 0 | 0 | 0 | 0.6 | 0.523 | 1.123 |
| Japan | 350.009 | 975.592 | 768.81 | 679.633 | 892.465 | 3666.509 |
| South Korea | 758.54 | 1838.269 | 485.335 | 345.832 | 402.466 | 3830.442 |
| Laos | 0.124 | 0 | 0 | 0 | 0 | 0.124 |
| Malaysia | 3.014 | 23.196 | 5.386 | 19.612 | 30.43 | 81.638 |
| Mongolia | 2.119 | 0.277 | 3.179 | 1.281 | 0.066 | 6.922 |
| New Zealand | 56.001 | 5.85 | 10.092 | 14.693 | 15.733 | 102.369 |
| Philippines | 6.672 | 14.105 | 38.983 | 47.959 | 46.993 | 154.712 |
| Singapore | 608.175 | 146.74 | 161.306 | 141.535 | 90.179 | 1147.935 |
| Taiwan | 1114.481 | 734.523 | 1445.785 | 2238.284 | 0.244 | 5533.317 |
| Thailand | 55.094 | 79.924 | 77.847 | 30.306 | 16.159 | 259.33 |

Near East and South Asia

| Countries | Foreign Military Sales Agreements(Dollars in Millions) | | | | | |
|-----------------------------|--|-------------|-------------|-------------|-------------|--------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Afghanistan | 0 | 6.066 | 67.94 | 226.787 | 253.108 | 553.901 |
| Algeria | 0.05 | 0 | 0 | 0 | 0 | 0.05 |
| Bahrain | 123.26 | 99.023 | 103.371 | 71.42 | 26.547 | 423.621 |
| Bangladesh | 0.886 | 0 | 0 | 5.734 | 0.571 | 7.191 |
| India | 0 | 139.89 | 61.375 | 0.995 | 85.592 | 287.852 |
| Israel | 2769.617 | 667.978 | 460.482 | 624.544 | 507.536 | 5030.157 |
| Jordan | 101.395 | 110.814 | 141.44 | 511.666 | 123.471 | 988.786 |
| Kuwait | 287.692 | 984.836 | 320.513 | 116.011 | 101.811 | 1810.863 |
| Lebanon | 5.438 | 1.342 | 0.685 | 1.997 | 1.25 | 10.712 |
| Morocco | 6.341 | 20.312 | 4.506 | 9.573 | 16.016 | 56.748 |
| Nepal | 0 | 3.156 | 13.079 | 5.321 | 4.553 | 26.109 |
| Oman | 3.694 | 815.853 | 9.398 | 111.894 | 47.062 | 987.901 |
| Pakistan | 0 | 24.235 | 167.392 | 176.286 | 491.922 | 859.835 |
| Qatar | 0.063 | 1.176 | 6 | 3 | 0.051 | 10.29 |
| Saudi Arabia | 680.509 | 851.555 | 653.296 | 1785.128 | 747.929 | 4718.417 |
| Sri Lanka | 0 | 0 | 1 | 7.156 | 0 | 8.156 |
| Tunisia | 1.849 | 9.167 | 7.555 | 18.677 | 1.137 | 38.385 |
| United Arab Emirates | 153.809 | 242.786 | 124.818 | 145.51 | 26.637 | 693.56 |
| Yemen | 0.747 | 0.115 | 15.828 | 3.945 | 13.62 | 34.255 |
| East Timor | 0 | 0 | 1 | 1.99 | 2.051 | 5.041 |
| Untaet | 0 | 1.796 | 0 | 0 | 0 | 1.796 |

Europe

| Countries | Foreign Military Sales Agreements(Dollars in Millions) | | | | | |
|---------------------------|--|---------|----------|---------|----------|----------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Albania | 2.872 | 5.634 | 9.711 | 5.14 | 3.94 | 27.297 |
| Armenia | 0 | 0 | 6.947 | 2.053 | 0 | 9 |
| Austria | 14.777 | 4.909 | 6.343 | 5.344 | 4.421 | 35.794 |
| Belgium | 84.803 | 47.827 | 68.269 | 27.736 | 128.839 | 357.474 |
| Bulgaria | 21.646 | 4.784 | 14.278 | 7.251 | 7.795 | 55.754 |
| Croatia | 0.326 | 4.128 | 14.419 | 0.006 | 0 | 18.879 |
| Czech Republic | 7.829 | 20.925 | 8.75 | 9.667 | 37.396 | 84.567 |
| Denmark | 44.391 | 94.613 | 21.923 | 54.188 | 83.296 | 298.411 |
| Estonia | 3.185 | 7.881 | 14.683 | 6.882 | 0.389 | 33.02 |
| Finland | 89.185 | 7.213 | 4.95 | 134.219 | 7.887 | 243.454 |
| France | 268.517 | 228.027 | 44.832 | 66.912 | 23.4 | 631.688 |
| Georgia | 3.595 | 34.855 | 11.985 | 13.579 | 35.99 | 100.004 |
| Germany | 91.577 | 158.241 | 324.631 | 172.681 | 96.654 | 843.784 |
| Greece | 806.178 | 280.735 | 66.364 | 257.456 | 83.961 | 1494.694 |
| Hungary | 2.632 | 13.647 | 5.363 | 13.442 | 29.623 | 64.707 |
| Ireland | 0.004 | 0.008 | 12.452 | 0.023 | 0.138 | 12.625 |
| Italy | 805.219 | 157.874 | 148.682 | 92.581 | 93.805 | 1298.161 |
| Kazakhstan | 0.13 | 1.061 | 1.055 | 3.05 | 6.049 | 11.345 |
| Kyrgyzstan | 0 | 7.337 | 4.751 | 1.856 | 0 | 13.944 |
| Latvia | 1.82 | 5.991 | 10.654 | 4.395 | 7.437 | 30.297 |
| Lithuania | 5.283 | 13.752 | 46.374 | 2.312 | 9.653 | 77.374 |
| Luxembourg | 0.566 | 2.791 | 2.036 | 0.96 | 0.752 | 7.105 |
| Macedonia | 16.164 | 4.509 | 10.098 | 16.016 | 1.906 | 48.693 |
| Malta | 5.822 | 0 | 5.428 | 0 | 0 | 11.25 |
| Moldova | 0.629 | 2.17 | 1.152 | 0 | 0 | 3.951 |
| Netherlands | 261.889 | 152.833 | 96.307 | 445.889 | 243.414 | 1200.332 |
| Norway | 93.435 | 85.854 | 102.364 | 166.812 | 78.359 | 526.824 |
| Poland | 27.841 | 66.154 | 3535.342 | 180.015 | 6.876 | 3816.228 |
| Portugal | 19.597 | 157.547 | 7.3 | 45.768 | 87.645 | 317.857 |
| Romania | 2.6 | 17.833 | 18.423 | 63.102 | 14.643 | 116.601 |
| Slovakia | 2.976 | 15.66 | 8.419 | 0.606 | 4.67 | 32.331 |
| Slovenia | 1.286 | 6.291 | 6.646 | 0.643 | 5.039 | 19.905 |
| Spain | 65.369 | 105.571 | 136.312 | 84.192 | 135.685 | 527.129 |
| Sweden | 3.303 | 6.731 | 2.09 | 7.391 | 102.434 | 121.949 |
| Switzerland | 14.762 | 132.688 | 23.797 | 238.218 | 21.076 | 430.541 |
| Turkey | 122.853 | 186.699 | 427.406 | 168.986 | 1330.601 | 2236.545 |
| Ukraine | 2.854 | 4.978 | 2.82 | 11.849 | 0.28 | 22.781 |
| United Kingdom | 671.702 | 244.121 | 464.679 | 478.48 | 361.864 | 2220.846 |
| Uzbekistan | 1.786 | 27.408 | 16.042 | 3.932 | 0 | 49.168 |
| Azerbaijan | 0 | 0 | 3.086 | 2.69 | 5.092 | 10.868 |
| Bosnia-Herzegovina | 2.1 | 2.139 | 2.595 | 6.784 | 5.714 | 19.332 |
| Tajikistan | 0 | 0 | 1.684 | 1.759 | 0 | 3.443 |
| Turkmenistan | 0 | 0.962 | 0.592 | 0 | 0.233 | 1.787 |

Africa

| Countries | Foreign Military Sales Agreements(Dollars in Millions) | | | | | |
|---------------------|--|----------|---------|----------|----------|----------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Angola | 0 | 0 | 0 | 0 | 0.15 | 0.15 |
| Cameroon | 0 | 0 | 0 | 0 | 0.15 | 0.15 |
| Egypt | 1614.278 | 1012.004 | 925.861 | 2061.458 | 1107.753 | 6721.354 |
| Ethiopia | 0 | 0 | 1.777 | 2.648 | 0.25 | 4.675 |
| Gabon | 0.07 | 0 | 0 | 0 | 0.008 | 0.078 |
| Ghana | 0.676 | 0 | 0.15 | 1.23 | 1.145 | 3.201 |
| Guinea | 0.32 | 3.078 | 0 | 0 | 0.201 | 3.599 |
| Kenya | 5.491 | 1.153 | 14.347 | 9.062 | 0.304 | 30.357 |
| Madagascar | 0 | 1.654 | 0 | 0 | 0 | 1.654 |
| Mali | 0.029 | 0.2 | 0.2 | 0 | 0 | 0.429 |
| Mozambique | 0.003 | 0.016 | 0 | 0 | 0.04 | 0.059 |
| Namibia | 0 | 0.368 | 0 | 0 | 0 | 0.368 |
| Niger | 0 | 0.294 | 0.251 | 0 | 0 | 0.545 |
| Nigeria | 6.736 | 8.61 | 6.754 | 4.622 | 2.318 | 29.04 |
| Senegal | 0.939 | 0.948 | 0.209 | 0.076 | 0.707 | 2.879 |
| Sierra Leone | 0 | 0 | 0 | 0 | 0.04 | 0.04 |
| South Africa | 0.055 | 1.916 | 12.498 | 0 | 0.137 | 14.606 |
| Ugnada | 0 | 0 | 0.965 | 3.588 | 2.106 | 6.659 |
| Zimbabwe | 0.858 | 0 | 0 | 0 | 0 | 0.858 |
| Benin | 0.145 | 0.02 | 0 | 0 | 0 | 0.165 |
| Botswana | 0.91 | 1.115 | 1.032 | 0.147 | 1.723 | 4.927 |
| Cape verde | 0 | 0 | 0.003 | 0 | 0.068 | 0.071 |
| Central African Rep | 0.003 | 0 | 0 | 0 | 0 | 0.003 |
| Chad | 0.3 | 0.588 | 0.53 | 0 | 0 | 1.418 |
| Djibouti | 0 | 0 | 2.819 | 2.129 | 10.877 | 15.825 |
| Eritrea | 0 | 0 | 0 | 0 | 0.2 | 0.2 |
| Gambia | 0 | 0 | 0 | 0 | 0.183 | 0.183 |
| Malawi | 0 | 0.185 | 0 | 0.253 | 0.003 | 0.441 |
| Rwanda | 0 | 0 | 0 | 0 | 0.5 | 0.5 |
| Sao Tome & Principe | 0 | 0 | 0.5 | 0 | 0 | 0.5 |
| Togo | 0 | 0.098 | 0.07 | 0 | 0.184 | 0.352 |
| Zambia | 0 | 0 | 0 | 0 | 0.6 | 0.6 |

Western Hemisphere

| Countries | Foreign Military Sales Agreements(Dollars in Millions) | | | | | |
|------------------------------|---|---------|--------|---------|---------|---------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Argentina | 8.902 | 3.454 | 3.563 | 4.596 | 15 | 35.515 |
| Bahamas | 0 | 0 | 0.619 | 0 | 0 | 0.619 |
| Barbados | 0.035 | 0.116 | 0.097 | 0 | 0 | 0.248 |
| Bolivia | 0.978 | 0.652 | 0.01 | 6.494 | 0 | 8.134 |
| Brazil | 8.378 | 35.288 | 11.2 | 2.058 | 141.463 | 198.387 |
| Canada | 98.898 | 137.396 | 248.75 | 170.254 | 287.411 | 942.709 |
| Chile | 2.499 | 547.964 | 0.637 | 0.462 | 17.365 | 568.927 |
| Columbia | 13.764 | 36.537 | 25.635 | 104.853 | 202.584 | 383.373 |
| Dominica | 0.507 | 0.822 | 27.777 | 0.614 | 0.602 | 30.322 |
| Ecuador | 0.363 | 5.133 | 5.491 | 6.867 | 5.597 | 23.451 |
| El Salvador | 1.678 | 3.126 | 1.945 | 3.129 | 6.816 | 16.694 |
| Guatemala | 0 | 0 | 0 | 0 | 2.46 | 2.46 |
| Guyana | 0.267 | 0.396 | 0.13 | 0 | 0.456 | 1.249 |
| Haiti | 0 | 0 | 0 | 0.227 | 0.734 | 0.961 |
| Honduras | 1.066 | 0.838 | 0.045 | 0.699 | 1.916 | 4.564 |
| Jamaica | 0.544 | 0.817 | 0 | 0.007 | 1.289 | 2.657 |
| Mexico | 19.406 | 2.057 | 6.835 | 4.447 | 4.009 | 36.754 |
| Nicarogua | 0 | 0 | 0.313 | 0.945 | 0.309 | 1.567 |
| Panama | 0.081 | 0 | 0 | 0.205 | 1.815 | 2.101 |
| Parauay | 0.026 | 0.597 | 0 | 0.021 | 0 | 0.644 |
| Peru | 0.176 | 0 | 0 | 0.031 | 0.778 | 0.985 |
| Suriname | 0 | 0 | 0 | 0.045 | 0 | 0.045 |
| Trinidad&Tobago | 0.143 | 0.1 | 0.314 | 0.079 | 0.087 | 0.723 |
| Uruguay | 2.995 | 0.34 | 0.632 | 0.087 | 0.385 | 4.439 |
| Venezulela | 28.168 | 3.192 | 6.839 | 14.33 | 0 | 52.529 |
| Antigua & Barbuda | 0.45 | 0.541 | 0.53 | 1.733 | 0 | 3.254 |
| Belize | 0.173 | 0 | 0.38 | 0.274 | 0.272 | 1.099 |

Appendix C. GDP

East Asia and Pacific

| Countries | GDP (Dollars in Millions) | | | | | |
|-------------------------|---------------------------|-----------|-----------|-----------|-----------|------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Australia | 528,000 | 525,500 | 571,400 | 611,700 | 640,100 | 2,876,700 |
| Brunei | 6,200 | 6,500 | 6,842 | – | 6,842 | – |
| Buhtan | 2,500 | 2,700 | 2,900 | – | 2,900 | – |
| Burma | 63,000 | 73,690 | 74,530 | 74,300 | 78,740 | 364,260 |
| Cambodia | 18,700 | 20,420 | 25,020 | 26,990 | 30,650 | 121,780 |
| China | 6,000,000 | 5,989,000 | 6,449,000 | 7,262,000 | 8,859,000 | 34,559,000 |
| China(Hogn Kong) | 180,000 | 198,500 | – | 234,500 | 227,300 | – |
| Fiji | 4,400 | 4,822 | 5,012 | 5,173 | 5,380 | 24,787 |
| Indonesia | 687,000 | 714,200 | 758,800 | 827,400 | 865,600 | 3,853,000 |
| Japan | 3,550,000 | 3,651,000 | 3,580,000 | 3,745,000 | 4,018,000 | 18,544,000 |
| Laos | 9,200 | 10,400 | 10,320 | 11,280 | 12,130 | 53,330 |
| Macau | 8,000 | 8,600 | 9,100 | – | 10,000 | – |
| Malaysia | 200,000 | 198,400 | 207,800 | 229,300 | 290,200 | 1,125,700 |
| Mongolia | 4,700 | 5,060 | 4,882 | 5,332 | 5,242 | 25,216 |
| Myanmar | – | – | – | – | – | – |
| Nauru | – | – | – | – | – | – |
| New Zealand | 75,400 | 78,400 | 85,340 | 92,510 | 101,800 | 433,450 |
| Norfolk Island | – | – | – | – | – | – |
| Palau | – | – | – | – | – | – |
| Papua New Guinea | 12,200 | 10,860 | 11,010 | 11,990 | 14,370 | 60,430 |
| Philippines | 355,000 | 379,700 | 390,700 | 430,600 | 451,300 | 2,007,300 |
| Singapore | 106,300 | 112,400 | 109,400 | 120,900 | 124,300 | 573,300 |
| Solomon Islands | 800 | – | – | – | – | – |
| South Korea | 920,000 | 941,500 | 857,800 | 925,100 | 965,300 | 4,609,700 |
| Taiwan | 386,000 | 406,000 | 528,600 | 576,200 | 631,200 | 2,528,000 |
| Thailand | 410,000 | 445,800 | 477,500 | 524,800 | 560,700 | 2,418,800 |
| Vietnam | 168,100 | 183,800 | 203,700 | 227,200 | 232,200 | 1,015,000 |

Near East and South Asia

| Countries | GDP (Dollars in Millions) | | | | | |
|-----------------------------|---------------------------|-----------|-----------|-----------|-----------|------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Afghanistan | 21,000 | 19,000 | 20,000 | 21,500 | – | – |
| Algeria | 177,000 | 173,800 | 196,000 | 212,300 | 233,200 | 992,300 |
| Bahrain | 8,400 | 9,910 | 11,290 | 13,010 | 15,830 | 58,440 |
| Bangladesh | 230,000 | 238,200 | 258,800 | 275,700 | 304,300 | 1,307,000 |
| East Timor | 415 | 440 | – | 370 | – | – |
| Gaza strip | 750 | 735 | 768 | – | – | – |
| India | 2,660,000 | 2,664,000 | 3,033,000 | 3,319,000 | 3,611,000 | 15,287,000 |
| Iran | – | 456,000 | 478,200 | 516,700 | 561,600 | – |
| Iraq | 59,000 | – | 37,920 | 54,400 | 94,100 | – |
| Israel | – | 122,000 | 120,900 | 129,000 | 154,500 | – |
| Jordan | – | 22,800 | 23,640 | 25,500 | 26,800 | – |
| Kuwait | 30,900 | 36,850 | 41,460 | 48,000 | 44,770 | 201,980 |
| Lebanon | 18,800 | 17,610 | 17,820 | 18,830 | 23,690 | 96,750 |
| Malives | 1,200 | 1,250 | – | – | – | – |
| Morocco | 112,000 | 121,800 | 128,300 | 134,600 | 138,300 | 635,000 |
| Nepal | 35,600 | 37,320 | 38,290 | 39,530 | 39,900 | 190,640 |
| Oman | 21,500 | 22,400 | 36,700 | 38,090 | 39,650 | 158,340 |
| Pakistan | 299,000 | 295,300 | 318,000 | 347,300 | 393,400 | 1,653,000 |
| Qatar | 16,300 | 15,910 | 17,540 | 19,490 | 23,640 | 92,880 |
| Saudi Arabia | 241,000 | 268,900 | 287,800 | 310,200 | 338,000 | 1,445,900 |
| Sri Lanka | 62,700 | 73,700 | 73,700 | 80,580 | 85,340 | 376,020 |
| Syria | 54,200 | 63,480 | 58,010 | 60,440 | 72,330 | 308,460 |
| Tunisia | 64,500 | 67,130 | 68,230 | 70,880 | 83,540 | 354,280 |
| United Arab Emirates | 51,000 | 53,970 | 57,700 | 63,670 | 111,300 | 337,640 |
| Yemen | 14,800 | 15,070 | 15,090 | 16,250 | 19,370 | 80,580 |

Europe

| Countries | GDP (Dollars in Millions) | | | | | |
|---------------------------|---------------------------|-----------|-----------|-----------|-----------|------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Albania | 14,000 | 15,690 | 16,130 | 17,460 | 18,970 | 82,250 |
| Andora | – | – | 1,900 | – | – | – |
| Armenia | 11,200 | 12,130 | 11,790 | 13,650 | 13,460 | 62,230 |
| Aruba | – | 1,940 | – | – | 2,130 | – |
| Austria | 226,000 | 227,700 | 245,300 | 255,900 | 267,600 | 1,222,500 |
| Azerbaijan | 27,000 | 28,610 | – | – | 37,920 | – |
| Belarus | 84,800 | 90,190 | 62,560 | 70,500 | 70,680 | 378,730 |
| Belgium | 297,600 | 299,700 | 299,100 | 316,200 | 325,000 | 1,537,600 |
| Benin | 6,800 | 7,380 | 7,742 | 8,338 | 8,553 | 38,813 |
| Bosnia-Herzegovina | 7,000 | 7,300 | 24,310 | – | 22,890 | – |
| Bulgaria | 50,600 | 49,230 | 57,130 | 61,630 | 71,540 | 290,130 |
| Croatia | 38,900 | 43,120 | 47,050 | 50,330 | 55,760 | 235,160 |
| Cyprus | 9,100 | 9,400 | 14,820 | 15,710 | 16,780 | 65,810 |
| Czech Republic | 155,900 | 157,100 | 161,100 | 172,200 | 199,400 | 845,700 |
| Denmark | 153,500 | 155,500 | 167,200 | 174,400 | 188,100 | 838,700 |
| Estonia | 15,200 | 15,520 | 17,350 | 19,230 | 22,290 | 89,590 |
| Finland | 136,200 | 133,800 | 142,200 | 151,200 | 161,500 | 724,900 |
| France | 1,540,000 | 1,558,000 | 1,661,000 | 1,737,000 | 1,816,000 | 8,312,000 |
| Georgia | 15,000 | 16,050 | 12,180 | 14,450 | 15,560 | 73,240 |
| Germany | 2,184,000 | 2,160,000 | 2,271,000 | 2,362,000 | 2,504,000 | 11,481,000 |
| Gibraltar | – | – | – | – | – | – |
| Greece | 201,100 | 203,300 | 213,600 | 226,400 | 236,800 | 1,081,200 |
| Hungary | – | 134,700 | 139,800 | 149,300 | 162,600 | – |
| Iceland | 7,700 | 8,440 | 8,678 | 9,373 | 10,570 | 44,761 |
| Ireland | 111,300 | 113,700 | 116,200 | 126,400 | 164,600 | 632,200 |
| Italy | 1,438,000 | 1,455,000 | 1,550,000 | 1,609,000 | 1,698,000 | 7,750,000 |
| Kazakhstan | 98,100 | 120,000 | 105,500 | 118,400 | 124,300 | 566,300 |
| Kyrgyzstan | 13,500 | 13,880 | 7,808 | 8,495 | 10,650 | 54,333 |
| Latvia | 20,000 | 20,990 | 23,900 | 26,530 | 30,290 | 121,710 |
| Liechtenstein | – | – | – | – | – | – |
| Lithuania | 29,200 | 30,080 | 40,880 | 45,230 | 49,210 | 194,600 |
| Luxembourg | 20,000 | 21,940 | 25,010 | 27,270 | 30,740 | 124,960 |
| Macedonia | 10,000 | 10,570 | 13,810 | 14,400 | 16,030 | 64,810 |
| Malta | 7,000 | 6,818 | 7,082 | 7,223 | 7,926 | 36,049 |
| Moldova | 11,000 | 11,510 | 7,792 | 8,581 | 8,175 | 47,058 |
| Monaco | – | – | – | – | – | – |
| Netherlands | 434,000 | 437,800 | 461,400 | 481,100 | 499,800 | 2,314,100 |
| Norway | 143,000 | 149,100 | 171,700 | 183,000 | 194,100 | 840,900 |

Europe (Con'd)

| Countries | GDP (Dollars in Millions) | | | | | |
|------------------------------|---------------------------|-----------|-----------|-----------|-----------|-----------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Poland | 368,100 | 373,200 | 427,100 | 463,000 | 514,000 | 2,145,400 |
| Portugal | 182,000 | 195,200 | 181,800 | 188,700 | 204,400 | 952,100 |
| Romania | 152,700 | 169,300 | 155,000 | 171,500 | 183,600 | 832,100 |
| Russian Federation | 1,270,000 | 1,409,000 | 1,282,000 | 1,408,000 | 1,589,000 | 6,958,000 |
| San Marino | 940 | — | — | — | — | — |
| Serbia and Montenegro | 25,300 | 23,150 | 23,890 | 26,270 | 41,150 | 139,760 |
| Slovakia | 66,000 | 67,340 | 72,290 | 78,890 | 87,320 | 371,840 |
| Slovenia | 34,090 | 37,060 | 36,820 | 39,410 | 43,360 | 190,740 |
| Spain | 828,000 | 850,700 | 885,500 | 937,600 | 1,029,000 | 4,530,800 |
| Sweden | 227,400 | 230,700 | 238,300 | 255,400 | 268,000 | 1,219,800 |
| Switzerland | 231,000 | 233,400 | 239,300 | 251,900 | 241,800 | 1,197,400 |
| Tajikistan | 7,500 | 8,476 | 6,812 | 7,950 | 8,730 | 39,468 |
| Turkey | 468,000 | 489,700 | 458,200 | 508,700 | 572,000 | 2,496,600 |
| Turkmenistan | 21,500 | 31,340 | 27,880 | 27,600 | 39,540 | 147,860 |
| Ukraine | 205,000 | 218,000 | 260,400 | 299,100 | 340,400 | 1,322,900 |
| United Kingdom | 1,520,000 | 1,528,000 | 1,666,000 | 1,782,000 | 1,830,000 | 8,326,000 |
| Uzbekistan | 62,000 | 66,060 | 43,990 | 47,590 | 48,240 | 267,880 |

Africa

| Countries | GDP (Dollars in Millions) | | | | | |
|----------------------------|---------------------------|---------|---------|---------|---------|-----------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Angola | 13,300 | 18,360 | 20,420 | 23,170 | 45,930 | 121,180 |
| Botswana | 12,400 | 13,480 | 14,200 | – | 17,240 | – |
| Burkina Faso | 12,800 | 14,510 | 14,550 | 15,740 | 16,950 | 74,550 |
| Burundi | 3,700 | 3,146 | 3,780 | 4,001 | 5,654 | 20,281 |
| Cameroon | 26,400 | 26,840 | 27,750 | 40,170 | 40,830 | 161,990 |
| Central African Rep | 4,600 | 4,296 | 4,183 | 4,248 | 4,784 | 22,111 |
| Chad | 8,900 | 9,297 | 10,670 | 15,660 | 14,790 | 59,317 |
| Congo | 32,000 | 34,000 | 40,050 | 42,740 | 40,670 | 189,460 |
| Egypt | 258,000 | 289,800 | 295,200 | 316,300 | 303,500 | 1,462,800 |
| Equatorial guinea | 1,040 | 1,270 | – | – | 25,690 | – |
| Eritrea | 3,200 | 3,300 | 3,850 | 4,154 | 4,471 | 18,975 |
| Ethiopia | 46,000 | 48,530 | 46,810 | 54,890 | 62,880 | 259,110 |
| Gabon | 6,700 | 8,354 | 7,301 | 7,966 | 9,535 | 39,856 |
| Gambia | 2,500 | 2,582 | 2,560 | – | 3,024 | – |
| Ghana | 39,400 | 41,250 | 44,440 | 48,270 | 54,450 | 227,810 |
| Guinea | 15,000 | 18,690 | 19,020 | 19,500 | 18,990 | 91,200 |
| Kenya | 31,000 | 32,890 | 33,030 | 34,680 | 37,150 | 168,750 |
| Lesotho | 5,300 | 5,106 | 5,583 | 5,892 | 5,124 | 27,005 |
| Liberia | 3,600 | 3,116 | – | 2,903 | 2,755 | 12,374 |
| Libya | 40,000 | 33,360 | – | 37,480 | 65,790 | – |
| Madagascar | 14,000 | 12,590 | 13,020 | 14,560 | 16,360 | 70,530 |
| Malawi | 7,000 | 6,811 | 6,845 | 7,410 | 7,524 | 35,590 |
| Mali | 9,200 | 9,775 | 10,530 | 11,000 | 13,560 | 54,065 |
| Mauriius | 12,900 | 12,150 | 13,850 | 15,680 | 16,090 | 70,670 |
| Mauritania | 5,000 | 4,891 | 5,195 | 5,534 | 6,891 | 27,511 |
| Mozambique | 17,500 | 19,520 | 21,230 | 23,380 | 26,030 | 107,660 |
| Namibia | 8,100 | 13,150 | 13,850 | 14,760 | 14,230 | 64,090 |
| Niger | 8,400 | 8,713 | 9,062 | 9,716 | 11,280 | 47,171 |
| Nigeria | 105,900 | 112,500 | 114,800 | 125,700 | 174,100 | 633,000 |
| Rwanda | 7,200 | 8,920 | 10,110 | 10,430 | 12,650 | 49,310 |
| Senegal | 16,200 | 15,640 | 17,090 | 18,360 | 20,530 | 87,820 |
| Sierra Leone | 2,700 | 2,826 | 3,057 | 3,335 | 4,921 | 16,839 |
| Somalia | 4,100 | – | 4,361 | 4,597 | 4,809 | – |
| South Africa | 2,001,000 | 427,700 | 456,700 | 491,400 | 533,200 | 3,910,000 |
| Sudan | 49,300 | 52,900 | 70,950 | 76,190 | 85,650 | 334,990 |
| Swaziland | 4,600 | 5,542 | 5,702 | 6,018 | 5,658 | 27,520 |
| Tanzania | 22,100 | 20,420 | 21,580 | 23,710 | 27,070 | 114,880 |
| Togo | 7,600 | 7,594 | 8,257 | 8,684 | 8,965 | 41,100 |
| Ugnada | 29,000 | 30,490 | 36,100 | 39,390 | 48,730 | 183,710 |
| Zambia | 7,590 | 8,240 | 8,596 | 9,409 | 10,590 | 44,425 |
| Zimbabwe | 28,000 | 26,070 | 24,030 | 24,370 | 28,370 | 130,840 |

Western Hemisphere

| Countries | GDP (Dollars in Millions) | | | | | |
|------------------------------|---------------------------|-----------|-----------|-----------|-----------|-----------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Anguilla | – | 112 | – | – | – | – |
| Antigua & Barbuda | – | 750 | – | – | – | – |
| Argentina | 391,000 | 403,800 | 435,500 | 483,500 | 518,100 | 2,231,900 |
| Bahamas | 5,000 | 4,590 | 5,049 | 5,295 | 6,098 | 26,032 |
| Barbados | 4,000 | 4,153 | 4,355 | 4,569 | 4,745 | 21,822 |
| Belize | 830 | 1,280 | – | 1,778 | 1,778 | – |
| Bermuda | 2,200 | 2,250 | 2,330 | – | 4,500 | – |
| Bolivia | 21,400 | 21,150 | 21,010 | 22,330 | 25,950 | 111,840 |
| Brazil | 1,340,000 | 1,376,000 | 1,375,000 | 1,492,000 | 1,556,000 | 7,139,000 |
| Canada | 928,000 | 934,100 | 958,700 | 1,023,000 | 1,114,000 | 4,957,800 |
| Chile | 153,000 | 156,100 | 154,700 | 169,100 | 187,100 | 820,000 |
| Columbia | 255,000 | 251,600 | 263,200 | 281,100 | 337,500 | 1,388,400 |
| Costa Rica | 31,900 | 32,000 | 35,340 | 37,970 | 44,680 | 181,890 |
| Cuba | 25,900 | 30,690 | 32,130 | 33,920 | 39,170 | 161,810 |
| Dominica | 50,000 | 53,780 | 52,710 | 55,680 | 63,730 | 275,900 |
| Ecuador | 39,600 | 42,650 | 45,650 | 49,510 | 56,900 | 234,310 |
| El Salvador | 28,400 | 29,410 | 30,990 | 32,350 | 31,240 | 152,390 |
| Grenada | 424 | 440 | – | – | – | – |
| Guadeloupe | – | – | – | – | 3,513 | – |
| Guatemala | 48,300 | 53,200 | 56,500 | 59,470 | 56,860 | 274,330 |
| Guyana | – | – | – | – | 3,549 | – |
| Haiti | 12,000 | 10,600 | 12,300 | 12,050 | 14,150 | 61,100 |
| Honduras | 17,000 | 16,290 | 17,550 | 18,790 | 20,590 | 90,220 |
| Jamaica | 9,800 | 10,080 | 10,610 | 11,130 | 12,170 | 53,790 |
| Marshall Islands | 115 | – | – | – | – | – |
| Mexico | 920,000 | 924,400 | 941,200 | 1,006,000 | 1,067,000 | 4,858,600 |
| Montserrat | – | – | – | – | – | – |
| Nicaragua | 12,300 | 11,160 | 11,600 | 12,340 | 16,090 | 63,490 |
| Panama | 16,900 | 18,060 | 18,780 | 20,570 | 22,760 | 97,070 |
| Paraguay | 26,200 | 25,190 | 28,170 | 29,930 | 29,080 | 138,570 |
| Peru | 132,000 | 138,800 | 146,000 | 155,300 | 164,500 | 736,600 |
| Puerto Rico | 43,900 | 43,010 | 57,980 | 68,950 | 72,700 | 286,540 |
| Suriname | – | 1,469 | 1,752 | 1,885 | 2,818 | – |
| Trinidad&Tobago | 10,600 | 11,070 | 10,520 | 11,480 | 18,010 | 61,680 |
| Uruguay | 31,000 | 26,820 | 43,670 | 49,270 | 32,960 | 183,720 |
| Venezuela | 146,200 | 131,700 | 117,900 | 145,200 | 153,700 | 694,700 |

Appendix D. United States Patent Applications Filed by Residents of Foreign Countries

East Asia and Pacific

| Countries | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Australia | 2,088 | 2,246 | 2,498 | 1,759 | 2,873 | 11,464 |
| China (Hogn Kong) | 1,008 | 1,109 | 1,159 | 1,120 | 1,223 | 5,619 |
| China | 694 | 966 | 1,230 | 1,132 | 2,043 | 6,065 |
| Fiji | 2 | 1 | 1 | 1 | | 5 |
| Indonesia | 10 | 25 | 26 | 32 | 21 | 114 |
| Japan | 62,676 | 61,259 | 61,177 | 46,267 | 65,025 | 296,404 |
| South Korea | 6,792 | 7,757 | 9,614 | 9,730 | 15,200 | 49,093 |
| Laos | 0 | 0 | 0 | 0 | 0 | 0 |
| Macau | 4 | 7 | 7 | 7 | 4 | 29 |
| Malaysia | 144 | 136 | 237 | 238 | 315 | 1,070 |
| Mongolia | 0 | 0 | 0 | 0 | 0 | 0 |
| Myanmar | 0 | 0 | 0 | 0 | 0 | 0 |
| Nauru | 0 | 0 | 0 | 0 | 0 | 0 |
| New Zealand | 355 | 402 | 473 | 202 | 324 | 1,756 |
| Norfolk Island | 0 | 1 | 0 | 0 | 0 | 1 |
| Palau | 0 | 1 | 0 | 0 | 0 | 1 |
| Philippines | 47 | 72 | 37 | 52 | 53 | 261 |
| Singapore | 766 | 792 | 817 | 676 | 848 | 3,899 |
| Solomon Islands | 0 | 0 | 0 | 0 | 0 | 0 |
| Taiwan | 12,403 | 13,761 | 14,537 | 13,129 | 16,865 | 70,695 |
| Thailand | 106 | 85 | 88 | 85 | 75 | 439 |
| Vietnam | 5 | 1 | 1 | 2 | 6 | 15 |

Near East and South Asia (Patents)

| Countries | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Afghanistan | 0 | 0 | 0 | 0 | 1 | 1 |
| Algeria | 2 | 0 | 1 | 0 | 2 | 5 |
| Bahrain | 0 | 0 | 1 | 1 | 0 | 2 |
| Bangladesh | 1 | 1 | 1 | 0 | 0 | 3 |
| India | 636 | 813 | 1,105 | 937 | 1,278 | 4,769 |
| Iran | 4 | 4 | 5 | 2 | 3 | 18 |
| Iraq | 1 | 1 | 0 | 0 | 0 | 2 |
| Israel | 2,781 | 2,737 | 2,611 | 1,840 | 2,827 | 12,796 |
| Jordan | 4 | 3 | 6 | 4 | 1 | 18 |
| Kuwait | 6 | 11 | 7 | 4 | 19 | 47 |
| Lebanon | 9 | 11 | 6 | 5 | 6 | 37 |
| Malives | 0 | 0 | 0 | 0 | 0 | 0 |
| Morocco | 1 | 1 | 5 | 3 | 3 | 13 |
| Nepal | 0 | 0 | 0 | 0 | 0 | 0 |
| Oman | 0 | 1 | 4 | 0 | 3 | 8 |
| Pakistan | 2 | 6 | 6 | 8 | 11 | 33 |
| Qatar | 0 | 1 | 1 | 4 | 1 | 7 |
| Saudi Arabia | 32 | 35 | 33 | 20 | 36 | 156 |
| Sri Lanka | 8 | 20 | 3 | 3 | 3 | 37 |
| Syria | 0 | 3 | 4 | 0 | 2 | 9 |
| Tunisia | 1 | 3 | 2 | 3 | 1 | 10 |
| United Arab Emirates | 2 | 11 | 10 | 14 | 12 | 49 |
| Yemen | 0 | 0 | 0 | 0 | 0 | 0 |

Europe (Patents)

| Countries | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|-----------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Albania | 0 | 0 | 0 | 0 | 1 | 1 |
| Andora | 3 | 3 | 2 | 1 | 1 | 10 |
| Armenia | 4 | 1 | 1 | 0 | 3 | 9 |
| Aruba | 1 | 1 | 0 | 0 | 0 | 2 |
| Austria | 945 | 1,134 | 1,009 | 627 | 941 | 4,656 |
| Belarus | 4 | 8 | 6 | 7 | 4 | 29 |
| Belgium | 1,341 | 1,435 | 1,420 | 884 | 1,314 | 6,394 |
| Bulgaria | 10 | 10 | 8 | 74 | 53 | 155 |
| Croatia | 22 | 20 | 23 | 17 | 38 | 120 |
| Cyprus | 7 | 5 | 7 | 5 | 9 | 33 |
| Czech Republic | 83 | 55 | 52 | 46 | 80 | 316 |
| Denmark | 1,130 | 1,227 | 1,145 | 700 | 947 | 5,149 |
| Estonia | 7 | 8 | 6 | 5 | 18 | 44 |
| Finland | 1,799 | 2,045 | 1,866 | 1,279 | 1,851 | 8,840 |
| France | 7,154 | 7,434 | 6,887 | 4,296 | 6,298 | 32,069 |
| Georgia | 5 | 3 | 5 | 3 | 5 | 21 |
| Germany | 19,776 | 21,657 | 19,646 | 11,904 | 18,245 | 91,228 |
| Gibraltar | 0 | 1 | 0 | 0 | 5 | 6 |
| Greece | 48 | 56 | 44 | 37 | 52 | 237 |
| Hungary | 91 | 135 | 128 | 71 | 105 | 530 |
| Iceland | 39 | 40 | 49 | 36 | 38 | 202 |
| Ireland | 401 | 448 | 382 | 311 | 446 | 1,988 |
| Italy | 3,185 | 3,336 | 3,325 | 2,208 | 3,170 | 15,224 |
| Kazakhstan | 2 | 1 | 2 | 1 | 2 | 8 |
| Kyrgyzstan | 0 | 0 | 0 | 0 | 0 | 0 |
| Latvia | 5 | 2 | 2 | 3 | 6 | 18 |
| Liechtenstein | 33 | 28 | 34 | 16 | 23 | 134 |
| Lithuania | 8 | 2 | 8 | 14 | 9 | 41 |
| Luxembourg | 77 | 81 | 72 | 51 | 71 | 352 |
| Macedonia | 2 | 0 | 0 | 3 | 1 | 6 |
| Malta | 6 | 5 | 3 | 2 | 6 | 22 |
| Moldova | 2 | 3 | 2 | 1 | 0 | 8 |
| Monaco | 29 | 27 | 29 | 10 | 16 | 111 |
| Netherlands | 2,822 | 3,074 | 2,382 | 1,743 | 2,938 | 12,959 |
| Norway | 452 | 587 | 470 | 275 | 463 | 2,247 |

Europe (Patents)

| Countries | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|---------------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Poland | 43 | 46 | 48 | 58 | 101 | 296 |
| Portugal | 27 | 31 | 22 | 15 | 51 | 146 |
| Romania | 13 | 9 | 10 | 12 | 14 | 58 |
| Russian Federation | 417 | 403 | 345 | 195 | 313 | 1,673 |
| San Marino | 1 | 0 | 0 | 0 | 0 | 1 |
| Slovakia | 3 | 15 | 6 | 2 | 14 | 40 |
| Slovenia | 21 | 21 | 55 | 32 | 40 | 169 |
| Spain | 611 | 690 | 633 | 460 | 727 | 3,121 |
| Sweden | 3,001 | 2,692 | 2,311 | 1,360 | 2,002 | 11,366 |
| Switzerland | 2,494 | 2,560 | 2,362 | 1,525 | 2,222 | 11,163 |
| Turkey | 31 | 39 | 41 | 34 | 53 | 198 |
| Ukraine | 39 | 46 | 39 | 27 | 33 | 184 |
| United Kingdom | 8,464 | 9,238 | 8,215 | 5,013 | 7,275 | 38,205 |
| Uzbekistan | 0 | 3 | 1 | 1 | 0 | 5 |
| Vatican City | 0 | 1 | 0 | 0 | 0 | 1 |
| Yugoslavia | 4 | 8 | 10 | 2 | 5 | 29 |

Africa (Patents)

| Countries | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|---------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Angola | 0 | 1 | 0 | 0 | 0 | 1 |
| Cameroon | 0 | 0 | 0 | 0 | 2 | 2 |
| Egypt | 16 | 13 | 13 | 6 | 13 | 61 |
| Ethiopia | 0 | 0 | 0 | 0 | 0 | 0 |
| Gabon | 0 | 0 | 0 | 0 | 0 | 0 |
| Ghana | 0 | 1 | 0 | 0 | 3 | 4 |
| Guinea | 0 | 0 | 0 | 0 | 0 | 0 |
| Kenya | 13 | 12 | 28 | 3 | 7 | 63 |
| Lesotho | 0 | 0 | 0 | 0 | 0 | 0 |
| Madagascar | 2 | 0 | 0 | 0 | 0 | 2 |
| Mali | 0 | 0 | 0 | 0 | 0 | 0 |
| Mauritius | 1 | 0 | 2 | 0 | 0 | 3 |
| Mozambique | 0 | 0 | 0 | 1 | 0 | 1 |
| Namibia | 0 | 0 | 0 | 0 | 0 | 0 |
| Niger | 0 | 0 | 0 | 0 | 0 | 0 |
| Nigeria | 7 | 3 | 4 | 2 | 3 | 19 |
| Senegal | 0 | 0 | 0 | 0 | 0 | 0 |
| Seychelles | 1 | 0 | 3 | 1 | 2 | 7 |
| Sierra Leone | 0 | 0 | 0 | 0 | 0 | 0 |
| South Africa | 259 | 248 | 263 | 122 | 210 | 1,102 |
| Swaziland | 0 | 0 | 0 | 0 | 0 | 0 |
| Tanzania | 1 | 1 | 1 | 0 | 0 | 3 |
| Uganda | 0 | 0 | 0 | 0 | 0 | 0 |
| Zimbabwe | 1 | 2 | 1 | 2 | 1 | 7 |

Western Hemisphere (Patents)

| Countries | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|---------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Anguilla | 0 | 1 | 0 | 0 | 0 | 1 |
| Argentina | 146 | 109 | 123 | 86 | 83 | 547 |
| Bahamas | 14 | 26 | 22 | 24 | 17 | 103 |
| Barbados | 4 | 4 | 0 | 7 | 9 | 24 |
| Bermuda | 4 | 12 | 11 | 3 | 7 | 37 |
| Bolivia | 1 | 1 | 0 | 1 | 1 | 4 |
| Brazil | 247 | 288 | 333 | 203 | 276 | 1,347 |
| Canada | 7,802 | 7,967 | 8,138 | 6,705 | 8,309 | 38,921 |
| Chile | 29 | 44 | 27 | 42 | 48 | 190 |
| Columbia | 28 | 26 | 22 | 16 | 13 | 105 |
| Costa Rica | 8 | 18 | 17 | 15 | 47 | 105 |
| Cuba | 6 | 11 | 7 | 1 | 7 | 32 |
| Dominica | 0 | 0 | 0 | 1 | 0 | 1 |
| Ecuador | 8 | 11 | 9 | 5 | 4 | 37 |
| El Salvador | 3 | 1 | 2 | 2 | | 8 |
| Grenada | 0 | 0 | 1 | 0 | 0 | 1 |
| Guadeloupe | 0 | 0 | 0 | 0 | 0 | 0 |
| Guatemala | 12 | 3 | 1 | 0 | 1 | 17 |
| Guyana | 1 | 0 | 0 | 0 | 0 | 1 |
| Haiti | 0 | 1 | 0 | 0 | 0 | 1 |
| Honduras | 1 | 0 | 0 | 3 | 3 | 7 |
| Jamaica | 1 | 2 | 3 | 3 | 5 | 14 |
| Marshall Islands | 1 | 0 | 0 | 0 | 0 | 1 |
| Mexico | 220 | 167 | 213 | 152 | 197 | 949 |
| Montserrat | 0 | 0 | 0 | 0 | 0 | 0 |
| Nicarogua | 1 | 0 | 0 | 0 | 0 | 1 |
| Panama | 10 | 4 | 6 | 8 | 3 | 31 |
| Paraguay | 0 | 0 | 0 | 1 | 0 | 1 |
| Peru | 8 | 9 | 7 | 2 | 3 | 29 |
| St. Lucia | 1 | 1 | 0 | 0 | 0 | 2 |
| Suriname | 0 | 0 | 0 | 0 | 0 | 0 |
| Trinidad&Tobago | 1 | 1 | 4 | 0 | 4 | 10 |
| Turks and Caicos Islands | 5 | 7 | 6 | 1 | 2 | 21 |
| Uruguay | 7 | 8 | 10 | 6 | 10 | 41 |
| Venezuela | 65 | 41 | 30 | 18 | 30 | 184 |

Appendix E. Military Expenditure

East Asia and Pacific

| Country | Military Expenditure (Dollars in Millions) | | | | | |
|-------------|---|--------|--------|--------|--------|---------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Australia | 9,300 | 11,390 | 14,120 | 16,650 | 17,840 | 69,300 |
| Fiji | 35 | 39 | 34 | 36 | 37 | 181 |
| Japan | 40,774 | 39,520 | 42,488 | 45,841 | 44,310 | 212,933 |
| South Korea | 12,800 | 13,094 | 14,522 | 16,180 | 21,050 | 77,646 |
| Laos | 9 | 10 | 11 | 11 | 11 | 51 |
| Malaysia | 1,690 | – | – | – | – | – |
| Mongolia | 23 | 24 | 26 | 26 | 27 | 126 |
| New Zealand | 490 | 516 | 606 | 1,147 | 1,147 | 3,905 |
| Philippines | 1,025 | 1,056 | 781 | 806 | 837 | 4,504 |
| Singapore | 4,470 | 5,000 | – | – | – | – |
| Taiwan | 8,041 | 7,574 | 7,612 | 7,685 | 7,923 | 38,835 |
| Thailand | 1,775 | – | – | – | – | – |

Near East And South Asia

| Country | Military Expenditure (Dollars in Millions) | | | | | |
|---------------------|---|--------|--------|--------|--------|--------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Algeria | 2,068 | 2,132 | 2,197 | 2,480 | 2,994 | 11,870 |
| Bahrain | 526 | 560 | 618 | 629 | 628 | 2,960 |
| Bangladesh | 571 | 589 | 607 | 995 | 1,008 | 3,770 |
| India | 12,079 | 11,520 | 14,019 | 18,860 | 19,040 | 75,518 |
| Israel | 8,701 | 8,970 | 9,110 | 9,161 | 9,444 | 45,386 |
| Jordan | 758 | 1,982 | 2,043 | 1,460 | 1,392 | 7,635 |
| Kuwait | 1,900 | 1,967 | 2,500 | 2,585 | 3,007 | 11,959 |
| Lebanon | 343 | 541 | 557 | 541 | 557 | 2,539 |
| Morocco | 1,400 | 2,228 | 2,297 | 2,306 | 2,306 | 10,537 |
| Nepal | 56 | 57 | 295 | 99 | 105 | 612 |
| Oman | 242 | 235 | 242 | 253 | 253 | 1,225 |
| Pakistan | 2,546 | 2,964 | 2,700 | 3,848 | 4,253 | 16,311 |
| Qatar | 723 | – | – | – | – | – |
| Saudi Arabia | – | 18,300 | – | – | 18,000 | – |
| Sri Lanka | 719 | 697 | 518 | 515 | 500 | 2,949 |
| Yemen | 483 | 684 | 886 | 962 | 992 | 4,007 |

Europe

| Country | Military Expenditure (Dollars in Millions) | | | | | |
|----------------|---|--------|--------|--------|--------|---------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Albania | – | 57 | – | – | – | – |
| Armenia | 135 | – | – | – | – | – |
| Belgium | 2,500 | 3,076 | 3,999 | 4,119 | 4,243 | 17,936 |
| Bulgaria | – | 356 | – | – | – | – |
| Croatia | – | 520 | – | 620 | – | – |
| Czech Republic | 1,200 | 1,190 | 2,105 | 2,170 | 2,235 | 8,900 |
| Denmark | 2,470 | – | 3,272 | – | – | – |
| Estonia | – | 155 | – | – | – | – |
| France | 46,500 | 47,895 | 45,238 | 45,119 | 45,000 | 229,752 |
| Georgia | 23 | – | – | – | – | – |
| Germany | – | 38,800 | 35,063 | – | – | – |
| Greece | 6,120 | 7,070 | 7,289 | 5,890 | 6,067 | 32,436 |
| Hungary | – | 1,080 | – | – | – | – |
| Ireland | 700 | 738 | – | – | – | – |
| Italy | 20,700 | 20,200 | 28,183 | 29,028 | 29,899 | 128,010 |
| Kazakhstan | 173 | 222 | – | – | – | – |
| Kyrgyzstan | 19 | – | – | – | – | – |
| Latvia | 87 | – | – | – | – | – |
| Lithuania | 231 | – | – | – | – | – |
| Luxembourg | 148 | 150 | 232 | 248 | 265 | 1,042 |
| Macedonia | 76 | 200 | 206 | 212 | 218 | 913 |
| Malta | 60 | 58 | 33 | 31 | 45 | 227 |
| Moldova | 6 | 6 | 10 | 9 | 9 | 39 |
| Netherlands | 6,500 | 7,803 | 8,044 | 9,408 | 9,408 | 41,164 |
| Norway | 3,113 | – | 4,034 | – | – | – |
| Poland | – | 3,500 | – | – | – | – |
| Portugal | – | – | 3,498 | – | – | – |
| Romania | – | 985 | – | – | – | – |
| Slovakia | – | 406 | – | – | – | – |
| Spain | – | 8,600 | 9,907 | – | – | – |
| Sweden | 4,395 | 4,527 | 5,557 | 5,729 | 5,501 | 25,709 |
| Switzerland | 2,548 | 2,600 | 2,678 | 2,472 | 2,548 | 12,846 |
| Turkey | – | 8,100 | 12,155 | – | – | – |
| Ukraine | – | 618 | – | – | – | – |
| United Kingdom | 30,749 | 31,700 | 42,837 | 41,551 | 42,836 | 189,672 |

Africa

| Country | Military Expenditure (Dollars in Milions) | | | | | |
|---------------------|--|-------|-------|-------|-------|--------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Angola | 2,160 | 2,227 | 2,651 | 1,836 | 2,000 | 10,874 |
| Cameroon | 119 | 184 | 189 | 211 | 230 | 933 |
| Egypt | 4,040 | – | 2,443 | – | – | – |
| Ethiopia | 800 | – | – | 337 | 260 | – |
| Gabon | 71 | 82 | 149 | 185 | 254 | 740 |
| Ghana | 35 | 36 | 44 | 49 | 84 | 248 |
| Guinea | 137 | 154 | 59 | 57 | 120 | 526 |
| Kenya | 179 | 185 | 231 | 177 | 281 | 1,053 |
| Madagascar | 49 | 52 | 70 | 45 | 329 | 544 |
| Mali | 50 | 420 | 52 | 22 | 106 | 650 |
| Mozambique | 35 | 98 | 101 | 117 | 78 | 430 |
| Namibia | 52 | 73 | 112 | 168 | 150 | 554 |
| Niger | 21 | 21 | 22 | 33 | 45 | 141 |
| Nigeria | 375 | 418 | 470 | 545 | 737 | 2,544 |
| Senegal | 67 | 69 | 96 | 107 | 117 | 456 |
| Sierra Leone | 10 | 10 | 12 | 13 | 14 | 60 |
| South Africa | 1,790 | 2,000 | 2,653 | 3,172 | 3,548 | 13,163 |
| Ugnada | 121 | 125 | 128 | 170 | 193 | 737 |
| Zimbabwe | 351 | 625 | 105 | 217 | 125 | 1,422 |

Western Hemisphere

| Country | Military Expenditure (Dollars in Milions) | | | | | |
|----------------------------|--|--------|--------|--------|--------|--------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
| Argentina | 4,300 | – | – | – | – | – |
| Bolivia | 120 | 123 | 127 | 133 | 130 | 632 |
| Brazil | 9,822 | 10,126 | 10,439 | 11,000 | 9,933 | 51,321 |
| Canada | 7,500 | 7,860 | 9,802 | 10,095 | 10,398 | 45,655 |
| Chile | 2,671 | 2,754 | 2,840 | 3,420 | 3,907 | 15,592 |
| Columbia | 3,300 | – | – | – | – | – |
| Ecuador | 612 | 631 | 650 | 655 | 650 | 3,197 |
| El Salvador | – | – | 157 | – | 162 | – |
| Guatemala | 191 | 197 | 203 | 202 | 170 | 961 |
| Haiti | 50 | – | 26 | 26 | – | – |
| Honduras | 94 | 97 | 100 | 101 | 99 | 491 |
| Jamaica | – | – | 31 | 31 | – | – |
| Mexico | 4,400 | 5,169 | 5,168 | 6,043 | 6,062 | 26,843 |
| Nicarogua | 29 | 30 | 31 | 33 | 32 | 155 |
| Panama | 138 | 143 | 145 | 147 | 150 | 723 |
| Parauay | – | – | 52 | 53 | – | – |
| Peru | 1,000 | 970 | 829 | 804 | 829 | 4,433 |
| Trinidad&Tobago | – | – | 67 | – | – | – |
| Uruguay | 250 | 243 | 218 | 258 | 265 | 1,233 |
| Venezulela | 1,000 | 1,030 | 1,126 | 1,558 | 1,606 | 6,319 |

Appendix F. Dispute

East Asia and Pacific

| Country | Dispute Status |
|--------------------|--|
| Australia | <ul style="list-style-type: none"> - Asserts land and maritime claims to Antarctica - East Timor and Australia agreed in 2005 to defer the disputed portion of the boundary for fifty years and to split hydrocarbon revenues evenly outside the Joint Petroleum Development Area covered by the 2002 Timor Sea Treaty |
| Fiji | none |
| Japan | <ul style="list-style-type: none"> - The sovereignty dispute over the islands of Etorofu, Kunashiri, and Shikotan, and the Habomai group, known in Japan as the "Northern Territories" and in Russia as the "Southern Kuril Islands," occupied by the Soviet Union in 1945, now administered by Russia and claimed by Japan, remains the primary sticking point to signing a peace treaty formally ending World War II hostilities - Japan and South Korea claim Liancourt Rocks (Take-shima/Tok-do) occupied by South Korea since 1954 - China and Taiwan dispute both Japan's claims to the uninhabited islands of the Senkaku-shoto (Diaoyu Tai) |
| Laos | <ul style="list-style-type: none"> - Southeast Asian states have enhanced border surveillance to check the spread of avian flu - talks continue on completion of demarcation with Thailand but disputes remain over several areas along Mekong River and Thai squatters - concern among Mekong Commission members that China's construction of dams on the Mekong River will affect water levels |
| Mongolia | none |
| New Zealand | <ul style="list-style-type: none"> - Asserts a territorial claim in Antarctica |
| Philippines | <ul style="list-style-type: none"> - Philippines claims sovereignty over certain of the Spratly Islands, known locally as the Kalayaan (Freedom) Islands, also claimed by China, Malaysia, Taiwan, and Vietnam - Philippines retains a dormant claim to Malaysia's Sabah State in northern Borneo based on the Sultanate of Sulu's granting the Philippines Government power of attorney to pursue a sovereignty claim on his behalf |
| South Korea | <ul style="list-style-type: none"> - Military Demarcation Line within the 4-km wide Demilitarized Zone has separated North from South Korea since 1953 - Periodic maritime disputes with North Korea over the Northern Limit Line - South Korea and Japan claim Liancourt Rocks (Tok-do/Take-shima), occupied by South Korea since 1954 |

Near East and South Asia

| Country | Dispute Status |
|-------------------|---|
| Algeria | - Algeria's border with Morocco remains an irritant to bilateral relations, each nation accusing the other of harboring militants and arms smuggling |
| Bangladesh | - discussions with India remain stalled to delimit a small section of river boundary, exchange 162 miniscule enclaves in both countries, allocate divided villages, and stop illegal cross-border trade, migration, violence, and transit of terrorists through the porous border; Bangladesh resists India's attempts to fence or wall off high-traffic sections of the porous boundary; a joint Bangladesh-India boundary inspection in 2005 revealed 92 pillars are missing; dispute with India over New Moore/South Talpatty/Purbasha Island in the Bay of Bengal deters maritime boundary delimitation; Burmese Muslim refugees strain Bangladesh's meager resources |
| India | - Since China and India launched a security and foreign policy dialogue in 2005, consolidated discussions related to the dispute over most of their rugged, militarized boundary, regional nuclear proliferation - Indian claims that China transferred missiles to Pakistan, and other matters continue; various talks and confidence-building measures have cautiously begun to defuse tensions over Kashmir, particularly since the October 2005 earthquake in the region; Kashmir nevertheless remains the site of the world's largest and most militarized territorial dispute with portions under the de facto administration of China (Aksai Chin), India (Jammu and Kashmir), and Pakistan (Azad Kashmir and Northern Areas); in 2004, India and Pakistan instituted a cease fire in Kashmir and in 2005, restored bus service across the highly militarized Line of Control; Pakistan has taken its |
| Jordan | - 2004 Agreement settles border dispute with Syria pending demarcation |
| Lebanon | - Lebanese Government claims Shab'a Farms area of Israeli-occupied Golan Heights; the roughly 2,000-strong UN Interim Force in Lebanon (UNIFIL) has been in place since 1978 - Military conflict with Israel(July, 2006) |
| Morocco | - claims and administers Western Sahara whose sovereignty remains unresolved |
| Nepal | - joint border commission continues to work on small disputed sections of boundary with India |
| Oman | - boundary agreement reportedly signed and ratified with UAE in 2003 for entire border, including Oman's Musandam Peninsula and Al Madhah exclave, but details have not been made public |
| Pakistan | - Various talks and confidence-building measures cautiously have begun to defuse tensions over Kashmir with India, but not solved yet |
| Sri Lanka | none |
| Yemen | - Saudi Arabia still maintains the concrete-filled pipe as a security barrier along sections of the border with Yemen in 2004 to stem illegal cross-border activities; Yemen protests Saudi erection of a concrete-filled pipe as a security barrier |

Europe

| Country | Dispute Status |
|-----------------------|--|
| Belgium | none |
| Czech Republic | <ul style="list-style-type: none"> - In February 2005, the ICJ refused to rule on the restitution of Liechtenstein's land and property assets in the Czech Republic confiscated in 1945 as German property - Austrian anti-nuclear activists have revived blockades of the Czech-Austrian border to protest operation of the Temelin nuclear power plant in the Czech Republic |
| France | <ul style="list-style-type: none"> - Madagascar claims the French territories of Bassas da India, Europa Island, Glorioso Islands, and Juan de Nova Island - Comoros claims Mayotte - Territorial dispute between Suriname and the French overseas department of French Guiana - France asserts a territorial claim in Antarctica - France and Vanuatu claim Matthew and Hunter Islands, east of New Caledonia |
| Greece | - Greece and Turkey continue discussions to resolve their complex maritime, air, territorial, and boundary disputes in the Aegean Sea |
| Italy | - Italy's long coastline and developed economy entices tens of thousands of illegal immigrants from southeastern Europe and northern Africa |
| Luxembourg | - none |
| Macedonia | - ethnic Albanians in Kosovo object to demarcation of the boundary with Macedonia in accordance with the 2000 Macedonia-Serbia and Montenegro delimitation agreement |
| Malta | none |
| Moldova | - Moldova and Ukraine have established joint customs posts to monitor transit through Moldova's break-away Transnistria region which remains under OSCE supervision |
| Netherlands | none |
| Sweden | none |
| Switzerland | none |
| United Kingdom | <ul style="list-style-type: none"> - In 2002, Gibraltar residents voted overwhelmingly by referendum to reject any "shared sovereignty" arrangement between the UK and Spain; the Government of Gibraltar insists on equal participation in talks between the two countries; Spain disapproves of UK plans to grant Gibraltar greater autonomy - UK rejects sovereignty talks requested by Argentina, which still claims the Falkland Islands - and Ireland dispute Denmark's claim that the Faroe Islands' continental shelf extends beyond 200 nm |

Africa

| Country | Dispute Status |
|---------------------|--|
| Angola | - Many Cabinda exclave secessionists have sought shelter in neighboring states |
| Cameroon | - Cameroon-Nigeria land and maritime boundary |
| Gabon | - the Sovereignty dispute with Equatorial over Gabon-occupied Mbane Island |
| Ghana | - Ghana struggles to accommodate returning nationals who worked in the cocoa plantations and escaped fighting in Cote d'Ivoire |
| Guinea | - Conflicts among rebel groups, warlords, and youth gangs in neighboring states have spilled over into Guinea, resulting in domestic instability - Sierra Leone has pressured Guinea to remove its forces from the town of Yenga, occupied since 1998 |
| Kenya | - Kenya served as an important mediator in brokering Sudan's north-south separation in February 2005 - Kenya provides shelter to approximately a quarter of a million refugees including Ugandans who flee across the border periodically to seek protection from Lord's Resistance Army (LRA) rebels |
| Madagascar | - claims Bassas da India, Europa Island, Glorioso Islands, and Juan de Nova Island |
| Mali | none |
| Mozambique | none |
| Namibia | - Dispute with South Africa over the location of the boundary in the Orange River |
| Niger | - Libya claims about 25,000 sq km in a currently dormant dispute |
| Nigeria | - Conflict with Cameroon, Niger, Chad |
| Senegal | - The Gambia and Guinea-Bissau attempt to stem Senegalese citizens from the Casamance region fleeing separatist violence, cross border raids, and arms smuggling |
| Sierra Leone | - Domestic fighting among disparate rebel groups, warlords, and youth gangs in Cote d'Ivoire, Guinea, Liberia, and Sierra Leone perpetuate insurgencies since 1999 |
| South Africa | - Managed dispute with Namibia over the location of the boundary |
| Uganda | - Uganda is subject to armed fighting among hostile ethnic groups, rebels, armed gangs, militias, and various government forces |
| Zimbabwe | - Botswana has built electric fences and South Africa has placed military along the border to stem the flow of thousands of Zimbabweans fleeing to find work and escape political persecution - Not clearly delimited Botswana-Zambia boundary in the river |

Western Hemisphere

| Country | Dispute Status |
|-------------------|---|
| Bolivia | - Chile rebuffs Bolivia's reactivated claim to restore the Atacama corridor, ceded to Chile in 1884, offering instead unrestricted but not sovereign maritime access through Chile for Bolivian natural gas and other commodities |
| Brazil | - Unruly region at convergence of Argentina-Brazil-Paraguay borders is locus of money laundering, smuggling, arms and illegal narcotics trafficking, and fundraising for extremist organizations |
| Canada | - Managed maritime boundary disputes with the US at Dixon Entrance, Beaufort Sea, Strait of Juan de Fuca, and around the disputed Machias Seal Island and North Rock - Uncontested sovereignty dispute with Denmark over Hans Island in the Kennedy Channel between Ellesmere Island and Greenland |
| Chile | - Chile rebuffs Bolivia's reactivated claim to restore the Atacama corridor, ceded to Chile in 1884, offering instead unrestricted but not sovereign maritime access through Chile to Bolivian gas and other commodities - Peru proposes changing its latitudinal maritime boundary with Chile to an equidistance line with a southwestern |
| Ecuador | - Organized illegal narcotics operations in Colombia penetrate across Ecuador's shared border and caused over 20,000 refugees to flee into Ecuador in 2004 |
| Guatemala | - Differendum that created a small adjustment to land boundary, a Guatemalan maritime corridor in Caribbean, a joint ecological park for the disputed Sapodilla Cays, and a substantial US-UK financial package |
| Honduras | - Border dispute with El Salvador |
| Mexico | - Prolonged drought, population growth, and outmoded practices and infrastructure in the border region have strained water-sharing arrangements with the US - The US has stepped up efforts to stem nationals from Mexico, Central America, and other parts of the world from illegally crossing the border with Mexico |
| Nicarogua | - Nicaragua filed a claim against Honduras in 1999 and against Colombia in 2001 at the ICJ over disputed maritime boundary involving 50,000 sq km in the Caribbean Sea - legal dispute over navigational rights of San Juan River on border with Costa Rica |
| Panama | - Organized illegal narcotics operations in Colombia operate within the border region with Panama |
| Peru | - Maritime dispute with Chile and Equador |
| Uruguay | -Uncontested dispute with Brazil over certain islands in the Quarai/Cuareim and Invernada streams and the resulting tripoint with Argentina |
| Venezulela | - Dispute with Guyana and Colombia |

Appendix G. Selected Data

| Region | Country | GDP | Patents | FMS | *Dispute | MilExp |
|-----------------------|----------------|------------|---------|-----------|----------|-------------|
| East Asia and Pacific | Australia | 2,876,700 | 11464 | 1,573.899 | 1 | 69,300.100 |
| | Fiji | 24,787 | 5 | 1.123 | 0 | 181.290 |
| | Japan | 18,544,000 | 296404 | 3,666.509 | 1 | 212,933.100 |
| | Laos | 53,330 | 0 | 0.124 | 1 | 51.040 |
| | Mongolia | 25,216 | 0 | 6.922 | 0 | 126.270 |
| | New Zealand | 433,450 | 1756 | 102.369 | 1 | 3,905.300 |
| | Philippines | 2,007,300 | 261 | 154.712 | 1 | 4,503.900 |
| Near East /South Asia | Algeria | 992,300 | 5 | 0.050 | 1 | 11,870.00 |
| | Bangladesh | 1,307,000 | 3 | 7.191 | 1 | 3,769.60 |
| | India | 15,287,000 | 4769 | 287.852 | 1 | 75,517.80 |
| | Jordan | 98,740 | 18 | 988.786 | 0 | 7,634.60 |
| | Lebanon | 96,750 | 37 | 10.712 | 1 | 2,538.60 |
| | Morocco | 635,000 | 13 | 56.748 | 1 | 10,536.90 |
| | Nepal | 190,640 | 0 | 26.109 | 1 | 611.82 |
| | Oman | 158,340 | 8 | 987.901 | 1 | 1,225.15 |
| | Pakistan | 1,653,000 | 33 | 859.835 | 1 | 16,310.50 |
| | Sri Lanka | 376,020 | 37 | 8.156 | 0 | 2,948.70 |
| | Yemen | 80,580 | 0 | 34.255 | 1 | 4,006.70 |
| Europe | Belgium | 1,537,600 | 6394 | 357.474 | 0 | 17,936.40 |
| | Czech Republic | 845,700 | 316 | 84.567 | 1 | 8,900.00 |
| | France | 8,312,000 | 32069 | 631.688 | 0 | 229,752.10 |
| | Greece | 1,081,200 | 237 | 1494.694 | 1 | 32,435.80 |
| | Italy | 7,750,000 | 15224 | 1298.161 | 1 | 128,010.30 |
| | Luxembourg | 124,960 | 352 | 7.105 | 0 | 1,042.37 |
| | Macedonia | 64,810 | 6 | 48.693 | 1 | 912.95 |
| | Malta | 36,049 | 22 | 11.25 | 0 | 227.24 |
| | Moldova | 47,058 | 8 | 3.951 | 1 | 39.40 |
| | Netherlands | 2,314,100 | 12,959 | 1200.332 | 0 | 41,163.50 |
| | Sweden | 1,219,800 | 11366 | 121.949 | 0 | 25,708.90 |
| | Switzerland | 1,197,400 | 11163 | 430.541 | 1 | 12,845.50 |
| | United Kingdom | 8,326,000 | 38205 | 2220.846 | 1 | 189,672.40 |

*Dispute: 1-dispute condition, 0-None

| Region | Country | GDP | Patents | FMS | *Dispute | MilExp |
|-----------------|--------------|-----------|---------|---------|----------|-----------|
| Africa | Angola | 121,180 | 1 | 0.15 | 0 | 10,874.00 |
| | Cameroon | 161,990 | 2 | 0.15 | 1 | 932.62 |
| | Gabon | 39,856 | 0 | 0.078 | 1 | 740.30 |
| | Ghana | 227,810 | 4 | 3.201 | 0 | 248.06 |
| | Guinea | 91,200 | 0 | 3.599 | 1 | 525.90 |
| | Kenya | 168,750 | 63 | 30.357 | 1 | 1,053.00 |
| | Madagascar | 70,530 | 2 | 1.654 | 1 | 544.40 |
| | Mali | 54,065 | 0 | 0.429 | 0 | 649.90 |
| | Mozambique | 107,660 | 1 | 0.059 | 0 | 430.03 |
| | Namibia | 64,090 | 0 | 0.368 | 0 | 554.10 |
| | Niger | 47,171 | 0 | 0.545 | 1 | 141.22 |
| | Nigeria | 633,000 | 19 | 29.04 | 1 | 2,543.90 |
| | Senegal | 87,820 | 0 | 2.879 | 0 | 455.50 |
| | Sierra Leone | 16,839 | 0 | 0.04 | 0 | 59.71 |
| | South Africa | 3,910,000 | 1,102 | 14.606 | 0 | 13,163.40 |
| | Uganda | 183,710 | 0 | 6.659 | 1 | 737.30 |
| | Zimbabwe | 130,840 | 7 | 0.858 | 0 | 1,422.40 |
| Western Hemisph | Bolivia | 111,840 | 4 | 8.134 | 1 | 632.20 |
| | Brazil | 7,139,000 | 1347 | 198.387 | 0 | 51,321.00 |
| | Canada | 4,957,800 | 38921 | 942.709 | 1 | 45,654.60 |
| | Chile | 820,000 | 190 | 568.927 | 1 | 15,592.00 |
| | Ecuador | 234,310 | 37 | 23.451 | 0 | 3,197.10 |
| | Guatemala | 274,330 | 17 | 2.46 | 1 | 961.40 |
| | Honduras | 90,220 | 7 | 4.564 | 1 | 490.51 |
| | Mexico | 4,858,600 | 949 | 36.754 | 0 | 26,842.57 |
| | Nicaragua | 63,490 | 1 | 1.567 | 1 | 154.67 |
| | Panama | 97,070 | 31 | 2.101 | 0 | 722.90 |
| | Peru | 736,600 | 29 | 0.985 | 0 | 4,432.70 |
| | Uruguay | 183,720 | 41 | 4.439 | 0 | 1,233.20 |
| | Venezuela | 694,700 | 184 | 52.529 | 1 | 6,319.40 |

*Dispute: 1-dispute condition, 0-None

Appendix H.

Letter of Offer and Acceptance(LOA) Standard Terms and Conditions

Section

1. Conditions – United States Government(USG) Obligations
2. Conditions – General Purchaser Agreements
3. Indemnification and Assumption of Risks
4. Financial Terms and Conditions
5. Transportation and Discrepancy Provisions
6. Warranties
7. Dispute Resolution

1 Conditions-United States Government(USG) Obligations

- 1.1 Unless otherwise specified, items will be those which are standard to the U.S. Department of Defense (DoD), without regard to make or model.
- 1.2 The USG will furnish the items from its stocks and resources, or will procure them under terms and conditions consistent with DoD regulations and procedures. When procuring for the Pruchaser, DoD will, in general, employ the same contract clauses, the same contract administration, and the same quality and audit inspection procedure as would be used in procuring for itself; except as otherwise requested by the Purchaser and as agreed to by DoD and set forth in this LOA. Unless the Purchaser has requested, in writing, that a sole source contractor be designed, and this LOA reflects acceptance of such designation by DoD, the purchaser understands that selection of the contractor source to fill requirements is the responsibility of the USG, which will select the contractor on the same basis used to select contractors for USG requirements. Further, the Purchaser agrees that the U.S.DoD is solely responsible for negotiating the terms and conditions of contracts necessary to fulfill the requirements in this LOA.
- 1.3 The USG will use its best efforts to provide the items for the dollar amount and within the availability cited.
- 1.4 Under unusual and compelling circumstances, when the national interest of the U.S.requires, the USG reserves the right to cancel or suspend all or part this LOA at any time prior to the delivery of defense articles or performance of defense services. The USG shall be responsible for termination costs of its suppliers resulting from cancellation or suspension under this section. Termination by the USG of its contractors with its suppliers, other actions pertaining to such contracts, or cessation of deliveries or performance of defense services is not to be construed as cancellation or suspension of this LOA itself under this section
- 1.5 U.S. personnel performing defense services under this LOA will not perform duties of a combatant nature, including duties relating to training and advising that may engage

U.S. personnel in combat activities outside the U.S., in connection with the performance of these defense services.

- 1.6 The assignment or employment of U.S. personnel for the performance of this LOA by the USG will not take into account race, religion, national origin, or sex.
- 1.7 Unless otherwise specified, this LOA may be made available for public inspection consistent with the national security of the United States.

2 Conditions-General Purchaser Agreements

- 2.1 The Purchaser may cancel this LOA or delete items at any time prior to delivery of defense article or performance of defense services. The Purchaser is responsible for all costs resulting from cancellation under this section
- 2.2 The Purchaser agrees, except as may otherwise be mutually agreed in writing, to use the defense articles sold hereunder only:
 - 2.2.1 For purposes specified in any Mutual agreed in writing, to use the defense articles sold
 - 2.2.2 For purposes specified in any bilateral or regional defense treaty to which the USG and the Purchaser are both parties, if section 2.2. is inapplicable; or,
 - 2.2.3 For internal security, individual self-defense, preventing or hindering the proliferation of weapons of mass destruction and the means of delivering such weapons, or civic action, if sections 2.2.1 and 2.2.2 are inapplicable.
- 2.3 The purchaser will not transfer title to, or possession of, the defense articles, components and associated support material, related training or other defense services(including plans, specification, or information), or technology furnished under this LOA to anyone who is not an officer, employee, or agent of the Purchaser(excluding transportation agencies), and shall not use or permit their use for purposes other than those authorized, unless the written consent of the USG has first been obtained. The Purchaser will ensure, by all means available to it, respect for proprietary rights in any items and any plans, specifications, or information furnished, whether patented or not. The Purchaser also agrees that the defense articles offered will not be transferred to Cyprus or otherwise used to further the severance or division of Cyprus, and recognized that the U.S. Congress is required to be notified of any substantial evidence that the defense articles sold in this LOA have been used in a manner that is inconsistent with this provision.
- 2.4 To the extent that items, including plans, designs, specifications, technical data, or information, furnished in connection with this LOA may be classified by the USG for security purposes, the Purchaser certifies that it will maintain a similar classification and employ measures necessary to preserve such security, equivalent to those employed by the USG and commensurate with security agreements between the USG and the Purchaser. If

such security agreements do not exist, the Purchaser certifies that classified items will be provided only to those individuals having an adequate security clearance and a specific need to know in order to carry out the LOA program and that it will promptly and fully inform the USG of any compromise, or possible compromise, of U.S. classified material or information furnished pursuant to this LOA. The Purchaser further certifies that if a U.S. classified item is to be furnished to its contractor pursuant to this LOA: (a) item will be exchanged through official Government channels, (b) the specified contractor has been granted a facility security clearance by the Purchaser will assume responsibility for administering security measures while in the contractor's possession. If a commercial transportation agent is to be used for shipment, the Purchaser certifies that such agent has been cleared at the appropriate level for handling classified items. These measures will be maintained throughout the period during which the USG may maintain such classification. The USG will use its best efforts to notify the Purchaser if the classification is changed.

3 Indemnification and Assumption of Risks

3.1 The Purchaser recognizes that the USG will procure and furnish the items described in this LOA on a non-profit basis for the benefit of the Purchaser. The Purchaser therefore undertakes to indemnify and hold the USG, its agents, officers, and employees harmless from any and all loss or liability (whether in tort or in contract) which might arise in connection with this LOA because of:

3.3.1 Injury to or death personnel of Purchaser or third parties, or

3.1.2 Damage to or destruction of (a) property of DoD furnished to Purchaser or suppliers specifically to implement this LOA, (b) property of Purchaser (including the items ordered by Purchaser pursuant to this LOA, before or after passage of title to Purchaser), or (3) property of third parties, or

3.1.3 Infringement or other violation of intellectual property or technical data rights.

3.2 Subject to express, special contractual warranties obtained for the Purchaser, the Purchaser agrees to relieve the contractors and subcontractors of the USG from liability for, and will assume the risk of, loss or damage to:

3.2.1 Purchaser's property (including items procured pursuant to this LOA, before or after passage of title to Purchaser), and

3.2.2 Property of DoD furnished to suppliers to implement this LOA, to the extent that the USG would assume for its property if it were procuring for itself the items being procured.

4 Financial Term and Conditions

- 4.1 The prices of items to be procured will be billed at their total cost to the USG. Unless otherwise specified, the cost of items to be procured, availability determination, payment schedule, and delivery projections quoted are estimates based on the best available data. The USG will use its best efforts to advise the Purchaser or its authorized representatives of;
 - 4.1.1 Identifiable cost increase that might result in an overall increase in the estimated costs in excess of ten percent of the total value of this LOA.
 - 4.1.2 Changes in the payment schedule, and
 - 4.1.3 Delays which might significantly affect estimated delivery dates. USG failure to advise of the above will not change the Purchaser's obligation under all subsections of section 4.4.
- 4.2 The USG will refund any payments received for this LOA which prove to be in excess of the final total cost of delivery and performance and which are not required to cover arrearages on other LOAs of the Purchaser.
- 4.3 Purchaser failure to make timely payments in the amounts due may result in delays in contract performance by DoD contractors, claims by contractor s for increased costs, claims by contractors for termination liability for breach of contract, claims by USG or DoD contractors for storage costs, or termination of contracts by the USG under this or other open Letter of Offer and Acceptance of the Purchaser at the Purchaser's expense.
- 4.4 The Purchaser agrees:
 - 4.4.1 to pay the USG the total cost to the USG of the items even if costs exceed the amounts estimated in this LOA
 - 4.4.2 to make payment(s) by check or wire transfer payable in U.S. dollars to the Treasury of the United States.
 - 4.4.3 if Terms of Sale specify "Cash with acceptance", to forward with this LOA a check or wire transfer in the full amount shown as the estimated Total cost, and agrees to make additional payments(s) upon notification of cost increase(s) and request(s) for funds to cover such increase(s).
 - 4.4.4 if Terms of Sale specify payment to be "Cash prior to delivery", to pay to the USG such amounts at such times as may be specified by the USG (including initial deposit) in order to meet payment requirements for items to be furnished from the resources of DoD. USG requests for funds may be based on estimated costs to cover forecasted deliveries of items. Payments are required 90 days in advance of the time DoD plans such deliveries or incurs such expenses on behalf of the Purchaser.
 - 4.4.5 if Terms of Sale specify payment by "Dependable Undertaking," to pay to the USG such amounts at such times as may be specified by the USG(including initial deposit) in order to meet payments required by contracts under which items are being procured, and any

damages and costs that may accrue from termination of contracts by the USG because of Purchaser's cancellation of this LOA. USG requests for funds may be based upon estimated requirements for advance and progress payments to suppliers, estimated termination liability, delivery forecasts, or evidence of constructive delivery, as the case may be. Payments are required 90 days in advance of the time USG makes payments on behalf of the Purchaser.

4.4.6 if Terms of Sale specify "Payment on delivery", that bills may be dated as of the date(s) of delivery of the items, or upon forecasts of the date(s) thereof.

4.4.7 that requests for funds or billing are due and payable in full on presentation or, if a payment date is specified in the request for funds or bill, on the payments date so specified, even if such payment date is not in accord with the estimated payment schedule, if any, contained in this LOA. Without affecting Purchaser's obligation to make such payment(s) when due, documentation concerning advance and progress payments, estimated termination liability, or evidence of constructive delivery or shipment in support of requests for funds or bills will be made available to the Purchaser by DoD upon request. When appropriate, the Purchaser may request adjustment of any questioned billed items by subsequent submission of a discrepancy report.

4.4.8 to pay interest on any net amount by which it is in arrears on payments, determined by considering collectively all of the Purchaser's open LOAs with DoD. Interest will be calculated on a daily basis. The principal amount of the arrearage will be computed as the excess of cumulative financial requirements of the Purchaser over total cumulative payments after quarterly billing payments due dates. The rate of interest paid will be a rate not less than a rate determined by the Secretary of the Treasury taking into consideration the current average market yield on outstanding short-term obligations of the USG as of the last day of the month preceding the net arrearage and shall be computed from the date of net arrearage.

4.4.9 to designate the Procuring Agency and responsible Paying Office and address thereof to which the USG will submit requests for funds and bill under this LOA.

5 Transportation and Discrepancy Provisions

5.1 The USG agrees to deliver and pass title to the Purchaser at the initial point of shipment unless otherwise specified in this LOA. With respect to items procured for sale to the Purchaser, this will normally be at the manufacturer's loading facility; with respect to items furnished from USG stocks, this will normally be at the U.S. depot. Articles will be packed, created, or otherwise prepared for shipment prior to the time title passes. If "Point of Delivery" is specified other than the initial point of shipment, the supplying U.S. Department or Agency will arrange movement of the articles to the authorized delivery point as a reimbursable service but will pass title at the initial point of shipment. The USG disclaims any liability for damage or loss to the items incurred after passage of title irrespective of whether transportation is by common carrier or by the U.S. Defense Transportation System.

- 5.2 The Purchaser agrees to furnish shipping instructions which include Mark For and Freight Forwarder Codes based on the Offer Release Code.
- 5.3 The Purchaser is responsible for obtaining insurance coverage and customs clearances. Except for articles exported by the USG, the Purchaser is responsible for ensuring that export licenses are obtained prior to export of U.S. defense articles. The USG incurs no liability if export licenses are not granted or they are withdrawn before items are exported.
- 5.4 The Purchaser agrees to accept DD Forms 645 or other delivery documents as evidence that title has passed and items have been delivered. Title to defense articles transported by parcel post passes to the Purchaser at the time of parcel post shipment. Standard Form 364 will be used in submitting claims to the USG for overage, shortage, damage, duplicate billing, item deficiency, improper identification, improper documentation, or nonshipment of defense articles and non-performance of defense services and will be submitted promptly by the Purchaser. DoD will not accept claims related to items of \$200 or less for overage, shortage, damages, non shipment, or non-performance. Any claim, including a claim for shortage, received after 1 year from passage of title to the article or from scheduled performance of the service will be disallowed by the USG unless the USG determines that unusual and compelling circumstances involving latent defects justify consideration of the claim. Claims, received after 1 year from date of passage of title or initial billing, whichever is later, for non-shipment/non-receipt of an entire lot will be disallowed by the USG. The Purchaser agrees to return discrepant articles to USG custody within 180 days from the date of USG approval of such return.

6 Warranties

- 6.1 The USG does not warrant or guarantee any of the items sold pursuant to this LOA except as provided in section 6.1.1. DoD contracts include warranty clauses only on an exception basis. If requested by the Purchaser, the USG will, with respect to items being procured, and upon timely notice, attempt to obtain contract provisions to provide the requested warranties. The USG further agrees to exercise, upon the Purchaser's request, rights the USG may have under contracts connected with the procurement of these items. Additional costs resulting from obtaining special contract provisions or warranties, or the exercise of rights under such provisions or warranties, will be charged to the Purchaser.
- 6.1.1 The USG warrants the title of items sold to the Purchaser hereunder but makes no warranties other than those set forth herein. In particular the USG disclaims liability resulting from infringement or other violation of intellectual property or technical data rights occasioned by the use or manufacture outside the U.S. by or for the Purchaser of items supplied hereunder.
- 6.1.2 The USG agrees to exercise warranties on behalf of the Purchaser to assure, to the extent provided by the warranty, replacement or correction of such items found to be defective, when such materiel is procured for the Purchaser.

6.2 Unless the condition of defense articles is identified to be other than serviceable, DoD will repair or replace at no extra cost defense articles supplied from DoD stocks which are damaged or found to be defective in respect to materiel or workmanship when it is established that these deficiencies existed prior to passage of title, or found to be defective in design to such a degree that the items cannot be used for the purpose for which they were designed. Qualified representatives of the USG and of the Purchaser will agree on the liability hereunder and the corrective steps to be taken.

7 Dispute Resolution

7.1 This LOA is subject to U.S. Federal procurement law.

7.2 The USG and the Purchaser agree to resolve any disagreement regarding this LOA by consultations between the USG and the Purchaser and not to refer any such disagreement to any international tribunal or third party for settlement

Appendix I.

Defense Trade Security Initiatives (DTSI)

I. Creation of new license authorizations

1. Major Program Authorization

This single comprehensive authorization, issued at the start of a U.S. Government (USG)-sanctioned program, will target the U.S. firm as the original equipment manufacturer (OEM). The new initiative will allow the USG to license major programs upfront, rather than by piecemeal

2. Major Project Authorization

This comprehensive authorization is issued to one or more registered U.S. prime contractors for a major project such as a foreign government commercial competition

3. Global Project Authorization

This initiative will reduce the amount of authorizations government must seek to perform activities in furtherance of government-to-government international agreements or Memorandums of Understanding concluded between the governments or DoD and a foreign Ministry of Defense to carry out cooperative programs for research and development, including test and evaluation of defense systems and technologies or cooperative production

4. Technical Data Exports for Acquisitions, Teaming Arrangements, Mergers, Joint Ventures and Similar Arrangements

This initiative would enable qualified U.S. defense companies to apply for licenses that authorize exchange with approved, NATO-member countries, Australia, and Japan firms, technical data to explore cooperative ventures

II. Expanding the scope of existing licensing practices

5. Multiple Destination Licenses

This authorization is designed to encourage the use of multiple destination licenses when a U.S. firm enters into commercial cooperative projects with foreign companies.

6. Warehousing and Distribution Agreements

This initiative will permit U.S. companies to export bulk items to a foreign company, to include U.S.

7. Expedited License Review Process for Defense Capabilities Initiatives

This initiative is designed to expedite U.S. review of licenses determined to be in support of Defense Capabilities Initiative (DCI)

8. Expedited Embassy Licensing Review Process

This initiative is designed to expedite the handling of license application for key supplies submitted to the Office of Defense Trade Controls, DoS, by foreign embassies based in Washington

9. Improving U.S. Government Export License Automation Systems

This initiative would standardize incompatible computer systems between DoD and State and between the USG and industry

III. Enhancing existing ITAR exemptions

10. Extension of ITAR Exemption to Qualified Countries

This initiative applies to allied countries that adopt and demonstrate export controls and Technology stems that are comparable to those in the U.S.

11. Exemption for Export Licensing of Maintenance Services and Training

This initiatives expands the ITAR exemption to authorize U.S. companies, without licensing requirements, to provide basic maintenance and/or maintenance training for inventories allied equipment

12. Exemption for Export of Technical Data in Response to DoD Requests for Proposals

This initiative expands the ITAR exemption to allow U.S. firms, without licensing requirements, to provide basic maintenance and/or maintenance training for inventory allied equipment

13. Improving DoD's Use of ITAR Exemptions

This initiative authorize DoD to use the numerous exemptions to licensing requirements that the DoD can utilize in connection with exports of defense articles, technical data, and defense services

14. Special Commercial Satellite Licensing Regime

This initiative implements, sec.103(a), FY2000 and 2001 Foreign Relation Act which authorizes expedited treatment of commercial satellite, technologies, components, and systems while ensuring priority to national security and U.S. obligations under the Missile Technology Control Regime

IV. Improving transfers relative to government-to-government program

15. ITAR Exemption for FMS Defense Services

This initiative revises the ITAR regulations to provide exemptions for defense services under FMS

16. Advance Retransfer Consent for USG Sold or Granted items

This initiative expands a similar initiative that was originally offered several years ago

advance retransfer consent for USG sold or granted items

17. Periodic Review of the U.S. Munitions List

This initiative provides a mechanism for the U.S. Munitions List to be reviewed completely every four years by requiring sections of the USML to be reviewed on an annual basis

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